

HISTORY OF SCIENCE IN SOUTH ASIA

A journal for the history of all forms of scientific thought and action, ancient and modern, in all regions of South Asia, published online at <http://hssa-journal.org>

ISSN 2369-775X

Editorial Board:

- Dominik Wujastyk, University of Alberta, Edmonton, Canada
- Kim Plofker, Union College, Schenectady, United States
- Clemency Montelle, University of Canterbury, Christchurch, New Zealand
- Fabrizio Speziale, School of Advanced Studies in the Social Sciences (EHESS), Paris, France
- Michio Yano, Kyoto Sangyo University, Kyoto, Japan
- Gudrun Bühnemann, University of Wisconsin-Madison, USA
- Anuj Misra, University of Copenhagen, Denmark
- Aditya Kolachana, Indian Institute of Technology, Madras, India
- Dagmar Wujastyk, University of Alberta, Edmonton, Canada

Publisher:

History of Science in South Asia

Principal Contact:

Dominik Wujastyk, Editor, University of Alberta

Email: <wujastyk@ualberta.ca>

Mailing Address:

History of Science in South Asia,
Department of History, Classics and Religion,
2-81 HM Tory Building,
University of Alberta,
Edmonton, AB, T6G 2H4
Canada

This journal charges no fees to authors and provides immediate open access to its content on the principle that making research freely available supports a greater global exchange of knowledge ("Diamond OS").

Copyright of all the articles rest with the respective authors. Articles are published under the provisions of the [Creative Commons Attribution-ShareAlike 4.0](https://creativecommons.org/licenses/by-sa/4.0/) license.

The electronic versions were generated from sources marked up in [L^AT_EX](https://www.latex-project.org/) on a computer running GNU/LINUX operating system. PDF was typeset using [X_ƎT_EX](https://www.xetex.org/) from the most recent [T_EXLive](https://www.texlive.org/). The base font used for Latin script and oldstyle numerals was [T_EX Gyre Pagella](https://www.gust.com.pl/) developed by [gust](https://www.gust.com.pl/), the Polish T_EX Users Group. Devanāgarī and other Indic fonts are by Tiro Typeworks or Sanskrit 2003 and 2020 from Omkarananda Ashram.

Fauna Names in the *Ḍākārṇava*

Iain Sinclair

University of Queensland, Australia

ONE OF THE LARGEST INVENTORIES of beasts and birds in premodern Sanskrit literature is found in the *Ḍākārṇava*, a late Buddhist tantra. This tantra describes a maṇḍala of goddesses or *yoginīs* manifesting in separate domains of avifauna, macrofauna and ichthyofauna. The maṇḍala expresses a systematic vision of the biosphere, albeit within the limited conceptual framework of yoga and esoteric correspondences. The *Ḍākārṇava* brings in dozens of names of fauna that have not been identified before or noticed in pre-existing Sanskrit medical, lexical and poetic texts. Accurate identifications of these fauna can shed light on their native nomenclature and, more generally, on knowledge of the natural world in premodern South Asia. The problem is how to plausibly identify novel fauna names from scant textual and contextual information. To this end, the present study looks more deeply into the natural, linguistic and intellectual environment of Eastern India, where the tantra was redacted. The fauna assemblages of Sanskrit pharmacopoeias and of related Buddhist tantras circulating in the late tenth and early eleventh centuries also give a clearer picture of the formation of the *Ḍākārṇava*'s fauna lists and brings to light new names or synonyms for several species.

1 PREVIOUS STUDIES AND RELATED LITERATURE

THE *ḌĀKĀRṆAVA* OR “Deluge of *Ḍākas*,” fully titled *Ḍākārṇavamahāyoginītantrarāja*, is one of the later, larger and less studied Buddhist tantras. The maṇḍala that includes the one hundred and eight fauna goddesses is described in the tantra's fifteenth chapter, which, together with its exegetical literature, has been conveyed only in Nepalese Sanskrit manuscripts and Tibetan translations. Until recently, little work had been done on its primary maṇḍala¹ and its “wind environ” (*vāyucakra*), “land environ” (*medinīcakra*) and “water environ” (*udakacakra*), which are populated by the respective kinds of fauna. Tsunehiko

¹ For an overview, see Tanaka 1987: 229–231; 2018: 228; Sugiki 2022: 39–42.

Sugiki's pioneering, extensively documented edition and translation of the Sanskrit and Tibetan texts of the fifteenth chapter, published in 2022, uses most of the pertinent textual sources and provides a firm foundation for the study of the *Ḍākārṇava*'s principal maṇḍala. Even so, some twenty-seven fauna names were left partly or wholly untranslated in Sugiki's monograph,² such that the reader often has to return to the text's sources and parallels to make sense of them. More work is needed in order to be able to accurately visualize the maṇḍala, to grasp the praxis system of the *Ḍākārṇava* and to determine its place among South Asian taxonomies of the natural world.

PRECEDENTS AND PARALLELS FOR THE ḌĀKĀRṆAVA'S FAUNA ASSEMBLY

The notion that various kinds of birds and beasts are manifestations of maṇḍala goddesses developed in a stream of Buddhist tantrism focused on the deity Heruka. The fundamentals of this tradition are set out in the *Sarvabuddhasamāyoga*, a tantra that was circulating by the first half of the eighth century.³ According to this tantra, in the remote past, our universe was revived and permeated by Heruka's life force at the behest of the Buddhas.⁴ The extended idea of Heruka's consort manifesting in different kinds of women and female fauna is expressed in an early form in a previously overlooked passage in the *Vajrārallitantra*. This short work, which espouses the relatively simple yoga of a two-armed form of Heruka, is probably not later than the ninth century. It is currently available in Sanskrit fragments and Tibetan translation. The *Vajrārallitantra* advises the yogi (*herukātmā*) to go to an isolated place and make offerings (*pūjayet*) to a female of some form:

पञ्चविंशतिकां कन्यां गावीं महिषीं तथैव च ।
मर्कटीं कुकुरीं चापि गर्दभीमुष्ट्रजां तथा ।
हरिणीं छागलीं चैव शूकरीं गवयसंभवाम् ॥⁵

... A woman [no older than the age] of twenty-five, a cow, a water buffalo,

² The phrase "some ... bird" or similar is used nine times in the translation of the *vāyucakra* verses, "some ... animal" four times in the *medinīcakra* verses, and "some ... creature" fourteen times in the *udakacakra* verses, in some cases with brief comments or notes (Sugiki 2022: 144–145, 148).

³ Tanaka 2018: 200–202.

⁴ *Sarvabuddhasamāyoga* 5.33a, 5.45c, 5.50cd: *bhūtapūrvam atīte*[...] *śrīherukamahāvajra*[h]

[...] *samāveśya punaḥ sarvaṃ* [i.e. *tribhuvanaṃ* or *sattvadhātum*] *sa bhasma-m-āpi jīvayet* (Negī 2018: 159).

⁵ *Vajrārallitantra* 5, via Abhayākara Gupta's *Āmnāyamañjarī* (Tomabeche 2018: 82), with silent trivial corrections. Only the most relevant (and socially acceptable) parts of this passage are quoted here. For the Tibetan, see D426, fol. 173a.

A female ape, a bitch, a donkey jenny and a female camelid,
A doe and a nanny goat, a sow and one born as a gayal.⁶

The small selection of fauna here does not seem to have been guided by any clear principle, except perhaps for contrarian tantric sentiment, as most of these animals are potential sources of ritual pollution, according to Brahmanical *smṛtis*.⁷ There is as yet no attempt to describe the biosphere in a systematic manner, nor to correspond particular species with particular maṇḍala goddesses. Nonetheless, the redactor of the *Ḍākārṇava* may have been familiar with this passage, as the phrase “a cow, a water buffalo” (*gāvīm mahiṣīm*) is paralleled in this tantra’s fifteenth chapter.⁸

The most direct inspiration for the fauna names of the *Ḍākārṇava* is a set of correspondences transmitted in the *Laghutantraṭīkā* of Vajrapāṇi.⁹ This work explicates the *Herukābhidhāna*, the so-called *laghutantra* of this stream of tantrism, according to trends current at the end of the tenth century.¹⁰ The *Laghutantraṭīkā* has been published in Sanskrit by Claudio Cicuzza and is also conveyed in a Tibetan translation. The passage of interest, which takes up most of the fifth chapter, was first discussed and quoted in a now-neglected 1930 article by Giuseppe Tucci, who was also the first to notice its relationship with the *Ḍākārṇava*.¹¹ Vajrapāṇi lays out three sets of correspondences between the maṇḍala goddesses and female life forms: thirty-six classes of women (*kuladūtī*); thirty-six fauna of the land, water, and forest *sthalacara-jalacara-vanacara*; and thirty-six avian fauna (*khecara*). The explication of the second set proceeds as follows:

इह वज्रवाराही कुलिका सर्वासां सर्वरूपपरिवर्तिनी। वज्रडाकिनी श्वानी। लामा अश्वी।
खण्डरोहा हस्तिनी। रूपिणी गौः। प्रचण्डा मेषी। [...] यममथनी कृकलासी ॥¹²

In this [system] Vajravārāhī the clan woman is manifest in all forms everywhere. [The maṇḍala goddess] Vajradākiṇī is Śvānī (Dog);

6 The name *gavaya* persists as a word for the gayal (*Bos frontalis*); see e.g., Praharaj 1931–40: 2132. van der Geer (2008: 84–86) instead identifies the *gavaya* as a gaur (*Bos gauros*), its ancestor species.

7 For some examples, see Sheshadri 2017: 14–17.

8 *Ḍākārṇava* 15.135a, ed. Sugiki 2022: 98. See also the revised edition in the following section.

9 Sugiki 2022: 11–12, 54ff.

10 The *Laghutantraṭīkā* was in circulation before the end of the tenth century at the latest,

according to Cicuzza (2001: 13).

11 Tucci 1930: 159 n. 1. This pioneering article was noticed neither by Cicuzza (2001) nor Sugiki (2022), although its usefulness is certainly limited, as Tucci did not show that the goddess names he reproduced from the *Laghutantraṭīkā*—evidently following MS A in Cicuzza 2001: 27–28 (cf. Sferra 2008: 63 No. 29)—were in fact pairs of correspondences.

12 *Laghutantraṭīkā* 5, ed. Cicuzza 2001: 70. The numbering of the goddesses has been added by myself.

Lāmā, Aśvī (Horse); Khaṇḍarohā, Hastinī (Elephant); Rūpiṇī, Gauḥ (Cow); Praçaṇḍā, Meṣī (Sheep¹³); [...] and Yamamathanī is Kṛkalāsī (Lizard).

In the *Ḍākārṇava*'s fauna assemblage, this second set is expanded into two sets comprising thirty-six terrestrial fauna and thirty-six aquatic fauna. The *Ḍākārṇava* also partly reorders and rewords the *Laghutantraṭīkā*'s seventy-two fauna names and in many cases expresses them in synonyms and vernacular forms. Many of these names are not readily found in dictionaries or other Sanskrit texts. It is nonetheless essential for the practitioner to know all of the fauna species that they designate. According to Vajrapāṇi, the goddesses only become effective (*siddhidāh*) when the yogi perceives each in their individual form (*svarūpaṃ*).¹⁴

It has not been noticed before that the goddess-fauna correspondences set out in the *Laghutantraṭīkā* occur in an independent and probably earlier work: the **Kulikātattvanirṇaya* ("Ascertainment of the Actualities of Clan Women"),¹⁵ *Kulikā* for short. These correspondences are set out at the very beginning of the *Kulikā* and form one of its two main topics. The text has been preserved in a Tibetan translation credited to the "great preceptor" Dīpaṃkara, who was presumably the famous Bengali monk active in Tibet between the years 1042 and 1054. The author of the *Kulikā* is an otherwise unidentified "Siddha in Oḍyāna" (*oḍya na du grub pa*). It is likely that his obscure text is the original authority for the seventy-two fauna goddesses. Vajrapāṇi, in this regard, states that the names in the *Laghutantraṭīkā*'s fifth chapter are drawn from another source-book, "a *mūlatantra*."¹⁶ This is a deliberately vague statement, as it does not apply, in this case, to any known recension of the *Herukābhīdhāna* or its supposed Ur-text (*mūlatantra*); Vajrapāṇi may therefore be referring obliquely to the *Kulikā* here. The fauna names in the *Kulikā* clearly represent the same set, although their Tibetan translations are independent of and often differ from the Tibetan translations of the *Laghutantraṭīkā* and the parallel passages in Kālacakra texts.¹⁷ It is then a working assumption that the *Kulikā* predates the *Laghutantraṭīkā* by

¹³ The Tibetan translation (D1402) understands "ewe" (*lug mo*), but *meṣa* is also a vernacular name for a water buffalo (Turner 1966 Nos. 4147, 14744).

¹⁴ *Laghutantraṭīkā* 5, ed. Cicuzza 2001: 70: *iti sthalacarajalacaravanacararūpaparivartinyah samayadevatyah śattriṃśat siddhidāh syur yogināṃ yadā yoginā te svarūpaṃ tāsāṃ jñāntīti*.

¹⁵ D1557, *Rigs ldan ma'i de kho na nyid nges*

pa. References to D *passim* are to Ue et al. 1934. Catalogues of the Tibetan canon give the title as **Kulikānāmatattvanirṇaya*.

¹⁶ *Laghutantraṭīkā* 5, ed. Cicuzza 2001: 69.

¹⁷ For instance, the name of Godhī (Monitor, 29) is transliterated as *go dhi* in the Tibetan translation of the *Laghutantraṭīkā* (D1402), but correctly translated as *rmigs pa ma* in the *Kulikā* (D1557). See also the Appendix.

some time—perhaps emerging in the 970s or 980s—and that it is the *Ḍākārṇava*’s prime source for its fauna names.

The other major source for the seventy-two fauna names is the literature of the Kālacakra tantric system. The earliest work in this system to utilise the fauna names is a short and so far unstudied “Handbook on the Inititates’ Circle” ascribed to one *Kālacakrapāda, a *Gaṇacakra*vidhi, which is available in Tibetan translation.¹⁸ Although it is nominally affiliated to Kālacakra tantrism in the title of its translation, it contains almost nothing germane to this system, and remains focused on the maṇḍala of the *Laghutantraṭīkā*. This *Gaṇacakra*vidhi was later expanded into a more Kālacakra-focused treatment of the subject by Dharmākāraśānti (fl. mid-eleventh century).¹⁹ *Kālacakrapāda’s nomenclature is a combination of, and is most likely intermediate between, the fauna names used in the *Laghutantraṭīkā* and in the two major revealed works of Kālacakra tantrism, both of which have been published in Sanskrit: the *Kālacakratantrarāja* (or *Kālacakra*), which contains a date locatable in the interval 1025–7 CE,²⁰ and its *Vimalaprabhā* commentary. The first avian fauna name in the *Laghutantraṭīkā* and *Kālacakrapāda’s **Gaṇacakra*vidhi is the goddess Cātākī, “Cuckoo,” who is called “the arrogant (cuckolding) bird” (*mānī pakṣī*) in the *Kālacakra*, whereas the *Vimalaprabhā* uses both names.²¹ The *Kālacakra*’s third chapter replicates the fauna names of the *Laghutantraṭīkā* with minor reordering and rewriting for metrical compliance.²² The first twenty-eight correspondences between fauna taxons and goddesses are articulated in the tantra’s abstruse wording as follows:²³

¹⁸ *Dpal dus kyi 'khor lo'i tshogs 'khor gyi cho ga* (D1393), catalogued with the title *Śrīkālacakraṇacakropāyikāvidhi*. The title given in the colophon, however, is simply *Tshogs kyi 'khor lo'i mchod pa* (*Gaṇacakra*vidhi).

¹⁹ Dharmākāraśānti’s *gaṇacakra* performance manual is preserved in a Tibetan translation of the same title, *Dpal dus kyi 'khor lo 'di dkyil 'khor gyi cho ga* (D1359).

²⁰ *Kālacakra* 1.27a: *vahnau* [3] *khe* [o] *'bd-hau* [4] (ed. Upadhyaya 1986: 78; Newman 1998: 320–321). On the calculation of the Solar Hijri calendar date 403, see Newman 1998: 343ff.

²¹ *Vimalaprabhā* on *Kālacakra* 3.150b: *mānī pakṣī cātakaḥ* (ed. Dwivedi and Bahulkar 1994: 121). In other cases the *Vimalaprabhā* has Kālacakrapāda’s names while the *Kālacakra* has Vajrapāṇi’s: Bhagavatī (60), Jalakākī (63) and Bukkī (69).

²² *Kālacakra* 3.149–152a, as numbered by Dwivedi and Bahulkar 1994: 120–121 120–1. In another textual tradition (cf. Lokesh Chandra 2010: 73) the verses are numbered 3.146–149a.

²³ This verse was previously translated by Andresen 1997, Appendix A, with several differences.

श्वाश्चो^{१२} गोहस्तिमेषासु^{३४५} त्वजहरिणखराः^{६७८} शूकरोष्ट्रौ^{९१०} दिगेते
 कुम्भीरा^{११}+खुः^{१११२} कुलीरो^{१३} झष^{१४} इति मकरो^{१५} दुर्दुरः^{१६} कूर्मशङ्खः^{१७१८} ।
 गण्डी^{१९} व्याघ्रश्च^{२०} ऋक्षः^{२१} सनकुलचमरी^{२२२३} जम्बुकोद्रो^{२४२५} विडाल^{२६}
 आरण्यश्वा^{२७} सर्पिहो^{२८} वसुदशकमिदं भूतजं क्रोधजं च^{२९} ॥ ३.१४९^d

Dog, horse; cow, elephant, sheep; goat, deer, donkey; and both swine and camel—these are the Directions^e [10].

Crocodile, cowrie,^f the crab, the fish, of course the water monster, the frog, the turtle, conch,

Rhino and tiger, the bear, the mongoose with the yak, the jackal, otter, the cat,

The wild dog with the [wild] lion—this Gods-ten [8+10] [group embodies] the spook-genus and the fury-genus [deities].^g

^aकुम्भीरा कुः ॥ conj. (see note 249 on Kapardī, *Dākārṇava* 15.169a, Water 24); ed. Dwivedi and Bahulkar 1994: 120 कुम्भीराखुः.

^bविडाल ॥ ed. Dwivedi and Bahulkar 1994: 120. (unmetrical); read (for metre): विडाली.

^cक्रोधजं च ॥ ed. *ibid.* (unmetrical); Lokesh Chandra 2010 fol. 44r₃: क्रोधवज्रम्.

^d*Kālacakra* 3.149 (ed. Dwivedi and Bahulkar 1994).

^eNamely, the consorts of the inner maṇḍala located in the ten directions (Tārā, Pāṇḍarā et al).

^fOn this interpretation of *ākhuḥ*, see again the following section on Kapardī.

^gNamely, eight *mātrkā*s (Carcikā, Vaiṣṇavī et al) and ten consorts of the *krodhas* (Jambhī, Stambhī et al).

A few of the fauna names are glossed in the *Vimalaprabhā* commentary on the *Kālacakra*, which is generally thought to have been composed in the same period as the tantra.²⁴ The Tibetan translations of *Kālacakra* texts, including the *Laghutantraṭīkā* (which was retroactively adopted into this tradition), adopt a largely uniform terminology that shows only slight differences in the translation of words for particular kinds of fauna. There are no particular indications that the *Kālacakra*'s fauna nomenclature influenced the *Dākārṇava*, which is in all likelihood an earlier revelation drawing either on the *Kulikā* or the *Laghutantraṭīkā*. It should be noted that the relative chronology of texts in this tradition has not been settled.²⁵

Little information on the fauna goddesses can be gleaned from the exegesis of the *Dākārṇava* itself. The only dedicated commentary on the tantra extant

24 *Vimalaprabhā* on *Kālacakratānta* 3.149–151 (ed. Dwivedi and Bahulkar 1994: 120–121).

25 Sugiki (2022: 11) concludes that the *Kālacakra* tradition is a source for the

Dākārṇava's fauna names. But as is shown here, multiple sources for these fauna names were circulating before the advent of the *Kālacakra* and *Vimalaprabhā*. See also the sections on Kapardī and Jūkā/Juṣujuṣī.

today, the *Bohitā* (“Boat”),²⁶ says nothing about the goddesses of the wind, land and water environs. In the mid–late twelfth century,²⁷ the *paṇḍita* Jayasena collaborated on the Tibetan translation of the *Ḍākārṇava* in Nepal and wrote praxis manuals that survive in Tibetan translation. His maṇḍala ritual handbook, the **Sādhana ratna padma rāgaṇidhi* (“Invocation Gem Ruby Mine”), addresses the fauna goddesses with mantras preserved in phonetic transcriptions.²⁸ A similar set of mantras is given in another invocation handbook authored by the otherwise unknown Ratnasena, who was probably close to Jayasena in place and time; this is extant in Sanskrit.²⁹ These and other medieval Nepalese literary productions that derive from or relate to the tantra’s fifteenth chapter³⁰ yield a few variants in the names of the fauna goddesses.

On the whole, the many misreadings in the Himalayan transmissions of *Ḍākārṇava* texts show how remote they are from the tantra’s milieu of origin. Ratnasena, for instance, reads the name Gaggārī, “Gagora catfish”—a species found in India only in the coastal waters of Bengal and Odisha—as Magārī, probably in the sense of “Mugger crocodile” (*Crocodylus palustris*).³¹ He struggles to parse the fauna goddess lists correctly, and then, in order to make up thirty-six names in the water environ, spuriously reads two additional names in the phrase “goddess leader” (*devatā-nāyakī*), which refers to Vajravārāhī and all fauna goddesses.³² The Tibetan translators also display a less than fulsome knowledge of the various sets of fauna names. They sometimes opt to phonetically replicate these names where they could have offered translations, as can be seen from comparison with the *Kulikā*. Their identifications conflict in several cases (see *Appendix*). In order to make better sense of the *Ḍākārṇava*’s fauna assembly, it is desirable to turn to other sources of knowledge about the Indian biosphere.

²⁶ Padmavajra’s *Bohitā* is extant in Sanskrit fragments and in translation: *Dpal mkha’ ’gro rgya mtsho rnal ’byor ma’i rgyud kyi rgyal po chen po’i ’grel pa gru gzengs* (D1419); see also Sugiki 2022: 3–4, n. 3.

²⁷ Sugiki 2022: 18–19.

²⁸ D1516, *Dpal mkha’ ’gro rgya mtsho’i rgyud kyi dkyil ’khor gyi ’khor lo’i sgrub thabs padma rā ga’i gter*, currently extant only in Tibetan (ed. Sugiki 2022: 195–386). This manual includes translations of the fauna environ verses that are near-identical to those of the Tibetan *Ḍākārṇava*, D372.

²⁹ *Mahāsaṃvarasaparikaramaṇḍalārcanavidhi*, shelved as National Archives (Kathmandu) manuscript *kramāṅka ca 22, viṣayāṅka 167*

(Vajrācārya 1967: 120–121), microfilmed as NGMPP B 24/52. See also Sugiki 2022: 22, 25.

³⁰ Sugiki 2022: 25–26. A set of sixty-four (mostly zoocephalic) Saṃvaras, not discussed by Sugiki, has been propagated in Nepal since at least the eighteenth century (Bühnemann 2008: 116) and is evidently a related tradition.

³¹ See the apparatus to *Ḍākārṇava* 15.167d, ed. Sugiki 2022: 104, n. 569, and the following discussion of Gaggārī. *Māgura* is also a name for an airbreathing catfish in Bengali.

³² *Ḍākārṇava* 15.170b (see the edition in this article). For details and references see Sugiki 2022: 60 n. 210.

MEDICAL, LEXICAL AND ZOOLOGICAL SOURCES

The long fauna lists of late Buddhist tantrism overlap with those of Sanskrit tracts on natural philosophy and medicine. Animal life is discussed in these tracts in connection with therapeutics—especially the curative properties of their meats. The ‘rehabilitative’ orientation of such lists is evident in Vajrapāṇi’s advice to make and take pills made of the meats of every named bird and beast “in the order being stated, as far as can be obtained.”³³ Also present here is the idea of consuming varieties of tabooed flesh as a liberating transgression against rigid socioreligious codes. This ethos is fully integrated into the iconography of Heruka-class deities. For instance, the *Ḍākinīvajrapaṇjara*, another tantra that can be placed in the late tenth century or so, describes a maṇḍala of *ḍākas* who hold in their sixteen hands a plethora of meats in individual skullbowls.³⁴ They include exotica such as “the king of fishes” (*mīnarāja*),³⁵ gecko meat (*jyaiṣṭhī*),³⁶ black panther or black cat flesh (*āñjanābha*),³⁷ the poultry of the coot (*kāraṇḍava*) and osprey (*kurara*),³⁸ gharial meat (*nakra*)³⁹ and, for good measure, the bodies of various deities. Buddhist tantrism in this period also maintains interest in the classical categories of birth—the egg-born, the earth-born, the moisture-born and so on—which are important in medical and religious texts alike. In the *Ḍākārṇava*, the various modes of epigenesis are correlated with particular environs.⁴⁰

The present investigation draws on both premodern and modern knowledge of the animal kingdom. The most pertinent sources are the lexicons and pharmacopoeias: the *kośas*, *nighaṇṭus* and *saṃhitās*. In addition, there are descriptive references to certain types of fauna in Sanskrit literature, *kāvya*. The analyses of classical ornithonyms in K. N. Dave’s masterful book, *Birds in Sanskrit Literature*, have been especially helpful here.

The study of a fauna assemblage needs to proceed within bioregional and historical bounds in order to arrive at coherent results. This study focuses on

33 *Laghutantraṭīkā* 5, ed. Cicuzza 2001: 71: *eṣāṃ sthalacarajalacaravanacarakhecarāṇāṃ parasparāhatair niravadyair yathālabdhair palalair pañcāmṛtasahitair vākṣyamāṇākrameṇa gulikām*.

34 The *Ḍākinīvajrapaṇjara* is available in Tibetan translation but, not currently, in Sanskrit. The Sanskrit terms cited here are drawn from the twenty-fourth maṇḍala of Abhayākara Gupta’s *Niṣpannayogāvalī* (ed. Lee 2004: 88–93), which derives from the fifth chapter of the *Ḍākinīvajrapaṇjara* (D419, 42b).

35 D419: *nya yi rgyal po*; Lee 2004: 89: -

mīnagaja-. According to one commentator, this is a rui (*rohita*); cf. n. a. 2015: 129.

36 See Turner 1966: 291 No. 5295; Lee 2004: 89: *jyeṣṭhī*; D419: *thu bo*.

37 D419: *smān mtshungs byi la*.

38 On these two ornithonyms, see Dave 1985: 299–301, 341–342.

39 D419: *sna ’thung ba*, “sucks through the nose,” i.e. its snout (*ghaṭa*).

40 For instance, the wind environ is a habitat of the egg-born (*aṇḍaja*); the water environ is a moisture-born (*svedaja*) habitat (*Ḍākārṇava* 15.131–133, 15.174–176, ed. Sugiki 2022: 97, 105).

the early eleventh century and the Bay of Bengal area because the Apabhraṃśa passages in the *Ḍākārṇava* have been regarded as typical of “East Bengal dialect” in that period.⁴¹ As many novel taxons in this tantra are expressed in irregular, semi-vernacular wording, and are not clarified by Sanskrit dictionaries such as *Monier-Williams’*, the lexicons of northeast Indian languages also need to be consulted. Bengali and Hindi lexemes cited in this study are drawn from the University of Chicago’s *Digital Dictionaries of South Asia* online resource unless stated otherwise. More specific reference is made to Gopal Chandra Prahara’s *Oriya-English Dictionary* and to Ralph Turner’s *Comparative Dictionary of the Indo-Aryan Languages*. While it is understood that such dictionaries have their shortcomings,⁴² and that modern lexical data should not be applied in a presentist fashion to the premodern past, compelling continuities in the nomenclature of various kinds of fauna sometimes emerge. Modern field surveys and fauna checklists that provide local names, scientific names and visual documentation have also been noted where need be. Online taxonomy databases that document their sources, such as Avibase, *Birds of the World* and FishBase,⁴³ supply some of the local fauna names discussed in this study.

2 A REVISED EDITION AND TRANSLATION OF SELECTED VERSES OF ḌĀKĀRṆAVA 15

THE ḌĀKĀRṆAVA’S VERSES on the three fauna environs are reedited here using the oldest available witness as the base text. The manuscript in question is now kept at the National Archives in Kathmandu under shelfmark *tr* 293 *vi* 265,⁴⁴ and is referred to hereafter ‘the manuscript’ or ‘MS.’ It is densely written in Nepalese hook-topped or round-headed (*vartula*) script on sheets of paper that were produced, in all likelihood, in the Northern Song dynasty. It could have been copied as early as the late eleventh century, in the view of Haraprasād Śāstri, who first described the manuscript.⁴⁵ The sheets of paper were probably brought to Kathmandu by Tibetan pilgrims; the manuscript was certainly handled by Tibetans, as it displays marginalia written in headless (*dbu med*) Tibetan script. Sugiki finds that this National Archives manuscript was the ancestor of “many” Nepalese witnesses of the *Ḍākārṇava*.⁴⁶ In the passages of interest, for instance,

41 Chaudhuri 1935: 19; Sugiki 2022: 9.

42 See, e.g., Lienhard 1978: 187–188.

43 See Lepage 2003–, Billerman et al. 2022, Froese and Pauly 2024 respectively.

44 Vajracārya 1965: 187–188, *kramāṅka tr* 293, *viṣayāṅka* 265. This manuscript was microfilmed as NGMPP A 138/9 and is collated as siglum A in Sugiki 2022: 21.

45 Śāstri 1915: 166. “The MS. may be

therefore safely placed fifty years before Bendall’s MS., 1691-2.” The date of this manuscript can be placed in the interval 1149–1166, according to the catalogue of the Cambridge University Digital Library (<http://cudl.lib.cam.ac.uk/view/MS-ADD-01691-00002/5>).

46 Sugiki 2022: 9, 22–23.

the unwitting lemma *saurasā* (instead of *sārasā*, the name of the Sarus crane) is propagated throughout all the manuscripts consulted by Sugiki.⁴⁷ A working hypothesis is that the Tibetan translation and Jayasena's tradition derives from the same exemplar as the National Archives MS. There is then no demonstrated need to collate other Nepalese manuscripts of the tantra here.

The question of which dialect of Middle Indic exerts most influence on the *Ḍākārṇava*'s dialect has not been satisfactorily resolved. Many of the irregularities in the National Archives manuscript, the oldest available witness, are classifiable as simple errors⁴⁸ or "eye dialect," and not as firm attestations of a period vernacular. It is doubtful that the orthography of this manuscript is in all cases faithful to the redactor's text, especially where we find the pundits and Tibetan translators reading differently. One noteworthy vagary of the MS is the pervasive substitution of postalveolar sibilant sounds (ś-) with alveolar sibilants (s-).⁴⁹ The manuscript reading *senā*, for instance, is a cognate form of Sanskrit *śyena*, "falcon"; it is unproblematic because it is attested in this form in Odia and other vernaculars.⁵⁰ However, in the case of the manuscript reading *sāmā*, cognate with Sanskrit *śyāmā* ("magpie-robin, shama bird"), the East Indian linguistic corpus leads us to expect ś[y]āmā.⁵¹ Likewise, the lemma *svānī*, "female dog," calls for correction to *śvānī*, given that a form beginning with *śva-* occurs in Jayasena's manual⁵² and that *śva* remains a vernacular word for "dog" in Bengali and Odia.

As only a few of the fauna names incorporate genuine vernacular forms, the present edition errs on the side of preferring attested Indic words. In general, this edition does not recognise as part of "the language of the *Ḍākārṇava*"⁵³ nonce words or any features of the writing of the MS that can be attributed to mis-copying,⁵⁴ to hypocorrection, to the common diction of tantric texts, to Nepalese scribal habits or to other widely observed aspects of the literary and manuscript culture of the period.

The following completely revised edition and translation of the verses on the fauna goddesses in the fifteenth chapter of the *Ḍākārṇava* collates the readings

47 Sugiki 2022: 96 n. 493.

48 Examples of obvious errors include *jalakākika* for *jalakākī* (15.128a) and *nīlaśrīvi* for *nīlagrīvi* (15.128b); see Sugiki 2022: 96 n. 493.

49 It has been said that the *Ḍākārṇava*'s dialect has only one kind of sibilant (Chaudhuri 1935: 9), but this is clearly not reflected in the orthography of the manuscript, where we find ś, ṣ and s glyphs in the writing of Apabhraṃśa words.

50 Turner 1966: 735 No. 12674, *śyēnā*. Turner 1966: 734 No. 12664, *śyāmā*.

51 For cognates, see the section on *Śāmā*

below.

52 D1516, f. 28b: *om badzra shwa nī ye (sic) huṃ hūṃ phaṭ* (cf. ed. Sugiki 2022: 342 n. 2064).

53 As described by Sugiki (2022: 26–33).

54 For instance, for the lemma *mārjjarikī* मार्रिकी (15.135, Land 7)—read: *mārjārakī*—it has been claimed that nouns ending in *-ikī* are a linguistic feature (Sugiki 2022: 26, 30). But there is clear potential for confusion between the glyph combinations °ज्रि° and °ज्रि°.

of the aforementioned National Archives manuscript ('MS') with Tsunehiko Sugiki's edition ('ed.'). The apparatus only records potentially significant differences⁵⁵ between the manuscript and the previous edition (which can be consulted for fuller testimony of other witnesses, parallels and translations). Metrical problems are indicated with wavy underlines, double wavy underlines draw attention to difficult readings, and double obeluses enclose text that is doubted to be original. In this edition, each taxon is enumerated for easy reference (see also the [Appendix](#)); enumeration digits are found in some late manuscripts,⁵⁶ but they are a kind of paratext and are not carried over into the translation.

The translation of fauna names involves finding common ground between Indic, English and scientific nomenclatures. For instance, the ornithonym *bāka* is a catch-all term for storks, ibises, egrets, and herons, that is, for birds of genera *Ciconiidae*, *Threskiornithidae* and *Ardeidae*.⁵⁷ Sensitivity to biogeographic context is also needed. The name *Haṃsī* should ideally refer to a white swan,⁵⁸ but swans are rarely found in the coastal northeast of India, whereas many species of geese, also known as *haṃsa*, are observed there. The Tibetan translation *ngang mo* more specifically understands *Haṃsī* to be the bar-headed goose hen (*Anser indicus*).⁵⁹ While the fauna names are all feminine nouns, the translation adopts gender-neutral terms, e.g., Elephant rather than Elephant Cow, in order to maintain a consistent terminology. Names that have been translated literally in order to reflect unusual wording in the source text, and which do not convey actual fauna names in English, are placed between quotation marks.

Each fauna name in the *Ḍākārṇava* corresponds to one distinct kind of fauna, as each fauna goddess manifests in a unique and tangible form. Nonetheless, some names refer to the same broad category of animal. In the land environ, for example, there seem to be two names for an elephant, *Gajī* and *Daṇḍārī*, which the Tibetans translated as *glang chen* and *ḍa ṇḍa rī*, respectively. According to [Monier-Williams'](#) dictionary, a *daṇḍāra* is an elephant in rut (in oestrus, in this case); it could be visually differentiated from other elephants by its temple gland secretions. There are also, for instance, three goddesses whose names could refer to sheep or goats. In this regard, the thirteenth-century *Mṛgapakṣīśāstra* of *Haṃsadeva*⁶⁰ indicates that different names for the same kind of animal denote different breeds.

⁵⁵ Some types of unrecorded trivial variation include doubled nasals, e.g., MS 15r₂ *sim̃ nghī*; gemination of consonants after *r*, e.g. 15r₃ *śā rddū lī*, 15r₁₂ *kū rmma*; insignificant semi-vernacular orthography, e.g., 15r₃ *ḍa ṇḍa rī*.

⁵⁶ For an example of a textual subtradition that adds enumeration to items in *śloka* lists, see Shāstri 1917: 92–93 for a transcript of *Ḍākārṇava* 5 from a recent manuscript.

⁵⁷ Dave 1985: 504; Alam, Sarowar, Badhon,

et al. 2015: 123–125; Habib et al. 2017: 318.

⁵⁸ Dave 1985: 428.

⁵⁹ According to Holler (2009), the Tibetan name *ngang pa mgo khra* applies to the bar-headed goose. On its occurrence in Bangladesh, see for example Alam, Sarowar, Chowdhury, et al. 2012: 196.

⁶⁰ This work has been known mainly through the translation of Sundaracharya 1927. But *pace* Dave (1985: 3), the

Then there are the names of mythical creatures that can apply to actual creatures. Various bird species are called *garuḍa* in South Asian vernaculars;⁶¹ *vyāḍa* or *vyāla*, “leogriff,” is also a generic name for carnivores, i.e. creatures with claws, or for snakes.⁶² Large, toothy aquatic animals of various kinds have been called *makaras*, “water monsters.” The figure of the “water woman” (*jalanārī*)—or, to use a perhaps misplaced term, the “mermaid”⁶³—is associated with dugongs in Western India.⁶⁴ Names drawn from classical mythology are therefore often left untranslated.

THE WIND ENVIRON (ḌĀKĀRṆAVA 15.125CD–129)

गरुडी^१ हंसी^२ चित्री^३ च काकी^४ बकी^a तिच्चिरिका^५ ॥ १२५
 मयूरी^६ ताम्रचूडी^७ च गुदबुलिका^८ कोमला^b ।
 पारावती^{११} बृहत्काकी^{१२} गडिनी^{१३} तु कपिञ्जली^{१४} ॥ १२६
 सुकी^{१५} मन्त्री^{१६} सारसा^{१७} च गृद्धा^{१८} उलूकी^{१९} चटिका^{२०} ।
 काष्ठचटी^{२१} चक्रवाकी^{२२} वृक्षारिणी^c तु कर्कटी^d ॥ १२७
 जलकाकी^{२५} []^e बिलाडी^{२६} नीलग्रीवी^{२७} तु सारिका^{२८} ।
 सेना^{२९} कुङ्कुमरोला^f च वाटिरी^{३१} काकजङ्घकी^{३२} ॥ १२८
 शामा^g लोहपृष्ठा^h चैव ददुरीⁱ तु सुगालिनी^{३६} ।
 एवं योगिनीचक्रं च वर्णं भूचक्रं यादृशम् ॥ १२९

^a बकी ॥ ed. em. (D372: *bya gaḥ*; D1516: *-ba kī-*); MS: व चीं

^b गु द बु लि का को म ला ॥ MS; read (for metrical compliance): गुदबुलिककोमला; conj.: व्कामला

^c वृक्षारिणी ॥ em.; MS, ed.: वृक्षारणी

^d कर्कटी ॥ conj.; MS: क क्व वी; ed.: karkavī

^e जलकाकी ॥ corr.; MS, ed.: जलकाकी+क+

^f कुङ्कुमरोला ॥ corr.; MS: कुं कु म रो ला; ed.: kuṅkumalolā

^g शामा ॥ em.; MS, ed.: सामा

^h लोहपृष्ठा ॥ em.; MS, ed.: लेहपिष्ठा

ⁱ ददुरी ॥ corr.; MS: ददुरी; ed.: daddarī

Garuḍī, Goose, “Pied” [Bird], Crow, Heron, Francolin,

Mṛgapakṣīśāstra is available in Sanskrit and has now been published by, for instance, Māruti. I thank an anonymous reviewer for this information.

⁶¹ According to Dave (1985: 492), *garuḍa* often refers to eagles. See also Turner 1966: 216 No. 4041.

⁶² For the former meaning see e.g. *Rā-*

janighaṇṭu 19.3ab: *vyāghraḥ pañcanakho vyālaḥ śārdūlo 'tha guhāśayaḥ*, and the discussion of Zimmermann 1987: 174.

⁶³ The epithet *jalanārī* was not in wide use, and synonyms, such as *jalakanyā*, seem to instead refer to “water nymphs” or to be post-classical usage.

⁶⁴ Prater 1965: 316; Hines 2012: 76.



Figure 1: Black francolin.



Figure 2: Pied cuckoo.

Peafowl, “Red-Combed” [Junglefowl], Red-Vented Bulbul, “Soft” [Bird], Pigeon, “Big Crow,” Ringed [Parakeet], Pheasant, Parrot, “Caller,” Sarus Crane, Vulture, Owl, Sparrowlet, Woodpecker, Shelduck, “Tree-Hater,” *Karkaṭi, “Crabber” Cormorant, Flying Squirrel, Bluejay, Myna, Hawk, Golden Oriole, Jungle Quail, Lapwing, Shama, Red-backed Kite, Frogmouth and Eagle: Such is the *yoginī* circle which looks like the earth-environ color.⁶⁵

Pied or “Variegated” Bird (Citrī) and the Francolins (Tittirikā)

The name Citrī is translated by Sugiki as “some ‘multicolored’ bird.”⁶⁶ As many birds have plumage consisting of different hues, a more specific interpretation is needed. The epithet *citra*, painted,” as applied to fauna, generally refers to striped, dappled or speckled appearance. Dave identifies three main kinds of bird with *citra* in their Sanskrit names: the spotted dove, the painted francolin and the Indian pitta. The spotted dove (*Spilopelia chinensis*) is one of “the commonest and most familiar birds of India” known by the name *citra*.⁶⁷ It has a distinctive half-collar of black feathers with white spots. The Sanskrit words *citrakapota* and *citrapakṣakapota* designate this bird, according to Dave. However, there is no *kapota* bird in the *Kulikā-Laghutantraṭīkā* tradition, in which the avifauna taxons for the most part correspond one-to-one with those of the *Ḍākārṇava*. The spotted dove may have been envisaged as a typical form of the “Pigeon Goddess,” Pārāvātī (who is eleventh in this environ), as well as the equally ubiquitous rock pigeon (*Columba livia*).

⁶⁵ Sugiki (2022: 144) here takes *bhū-* to

Another identification for Citrī could be a species of francolin identified as a “painted bird,” a *citrapakṣa* or *citrapakṣī*, because of its high-contrast plumage.⁶⁸ The painted francolin (*Francolinus pictus*), appositely, is still called *citrīta titīra* in Hindi, *cittura* in Marathi and so on. The visually quite similar black francolin (*Francolinus francolinus*, Figure 1) is also regarded as kind of *citrapakṣa*.⁶⁹ These two francolins are encompassed by the orthonym *tittira*,⁷⁰ which is already represented as Tittirikā in the same series and as Tittirī in the *Laghutantraṭīkā*. The name *tittira* mainly refers to the black francolin, according to Dave; Citrī would not have been envisaged as a bird that resembled another bird in the same environ too closely. That being so, another option is the Indian pitta (*Pitta brachyura*), a colorful passerine bird. Its Hindi name, *naiṛaṃg* or *navaraṅga*, referring to its distinctive plumage “of nine colors,” is linked by Dave to the Sanskrit name *citraka*. However, if Citrī is the Indian pitta, she would have no clear parallel in the *Laghutantraṭīkā* assemblage. In that assemblage, the goddess Caṭakī, who represents passerine birds, already has a counterpart in Caṭikā (twentieth in this environ).

If the fauna assembly is interpreted strictly through the schema of the *Kulikā-Laghutantraṭīkā* tradition, then the goddess Citrī may be correlated with Cātakī, “Cuckoo,” one of the few birds that lacks a definite parallel in the wind environ. The present-day referent of the word *cātaka* in Bengali and Hindi, the pied cuckoo (*Clamator jacobinus*, Figure 2), suits the descriptor *citrī* with its characteristic black-and-white plumage. Other species of cuckoo have Sanskrit names that refer to their variegated plumage, especially the banded bay cuckoo (*Cacomantis sonneratii*).⁷¹ But cuckoos are classically known for traits other than their plumage—as a “rainbird” (*meghavṛtti*), for instance. Another possible identification of Citrī is the female Asian koel (*Eudynamis scolopaceus*), sometimes called *citrakokila*. As there are several candidates fit for the name Citrī, a deliberately nonspecific translation is adopted here: the “Pied Bird.”

“Red-Combed” Junglefowl (*Tāmracūḍī*)

The bird “with a copper-red crest” (*tāmracūḍī*) is a chicken, which is identified in the same way in its common Tibetan name: *zangs kyi gtsug phud ma*. An issue with Sugiki’s translation “cock”—apart from the male-gendered name for the

mean “being.” However, the *bhūcakra* is identified with the earth environ in the Tibetan translation (*‘khor lo’i sa gzhi gang ‘dra’i mdog*; cf. Sugiki 2022: 173). In other words, the *yoginīs* have the yellow color (*pīṭavarṇa*) of the adjoining *medinīcakra*, if not their natural color.

66 Sugiki 2022: 144.

67 Dave 1985: 257–258.

68 Dave 1985: 283, 495.

69 Dave 1985: 283, 495.

70 The ornithonyms *citrapakṣa*/*citrapakṣī* are sometimes translated as Hindi *tītara*; see, for instance, Mahīdharaśarman 1898–99: 158.

71 Dave (1985: 131) associates the name *rājapaṭṭikā* with this species.

goddess—is that most chicken breeds are flightless, and the fauna of the wind environ are all avian. This name should, strictly speaking, also refer to the ancestor species of the chicken, the red junglefowl (*Gallus gallus*), which is capable of flight. According to Dave, this is the species designated by the Sanskrit name *kukkuṭa*.⁷² Kukkuṭī is the eighteenth avifauna goddess in the *Laghutantraṭīkā*.⁷³ The junglefowl hen's comb is so small that the name *tāmracūḍī* is not fully apt for it, but the vision of the *Ḍākārṇava* may not be very heedful of differences between the females and males of individual species.

Red-vented Bulbul (Gudabulikā)

Sugiki takes *gudabulikā* to mean a bird with an “intestine-like crest,” following Ratnasena's variant form *gudacūḍikā*.⁷⁴ The reading of the manuscript is, however, supported by the Tibetan transliteration *gu da bu li* and much of the later manuscript tradition. It comprises two meaningful elements: *guda*, “rectum,” and *bulika*, which evidently refers to the bulbul, even though it is not recorded in most Sanskrit lexicons. This bird is known by cognate names in Indian vernaculars: Bengali *bulabuli*, Odia *bulbul*, Hindi *bulabula*. The red-vented bulbul (*Pycnonotus cafer*, Figure 3) has bright red plumage around its under-tail area. Modern taxonomy refers to this eye-catching feature; the Sri Lankan subspecies is *P. c. haemorrhousus*. The subspecies in the region of interest is *P. c. bengalensis*, locally called the “Bengali” bulbul, *bāñlā bulbul*.⁷⁵ Although the *bulika* name element may in this case involve homonymy with Sanskrit *buli* (“anus”), the ornithonym “bulbul” is of definite Perso-Arabic origin. It eventually supplanted earlier Indic names for the bird that referred to its angular black crest.⁷⁶ These birds could already have been recognized by the foreign name *bula* or *bulika* in the tenth century,⁷⁷ since Arab traders had established themselves in Bay of Bengal port towns by this time.

One of the avifauna goddesses in the *Laghutantraṭīkā* is Vāgbulikā, a name that can be taken to mean “vocal bulbul,” as the species is well known for its song.⁷⁸ However, the Tibetan translations of the *Laghutantraṭīkā* and *Kālacakrapāda's *gaṇacakra* handbook take *vāgbulikā* to mean a bat: *pha vad ma* and *pags pa'i bya chen po* (“big membrane bird”),⁷⁹ respectively. Here the translators evidently read

⁷² Dave 1985: 138.

⁷³ *Laghutantraṭīkā* 5: *subhadra kukkuṭī* (ed. Cicuzza 2001: 70). The latter word is translated as *bya gag mo*, “chicken,” and in the **Kulikā* as *khyim bya mo*, “domestic hen.”

⁷⁴ Sugiki 2022: 96, 144 A conceptually similar Sanskrit ornithonym, *carmacūḍā*, is indeed attested, but Dave (1985: 271) relates it to the aforementioned *junglefowl*.

⁷⁵ Alam, Sarowar, Chowdhury, et al. 2012: 210.

⁷⁶ Dave 1985: 34–35.

⁷⁷ Dave 1985: 35.

⁷⁸ Persian *bolbol* بلبل originally refers to the nightingale (Alam and Clinton 1989).

⁷⁹ *Carmapakṣī* is one of the synonyms of a bat or flying fox in *Rājanighaṇṭu* 19.112–113 (ed. Bhaṭṭācāryya et al. 1933?: 468).



Figure 3: Red-vented bulbul.



Figure 4: Orange-breasted green pigeon.

this name as *vāguli*, *vālguda* or similar. But the *Vimalaprabhā* states that *vāgbulikā* is synonymous with a bird called *gudamukha*, “rectum-aperture,”⁸⁰ a name that probably refers to the bird’s vent rather than its beak, and if so again indicates the red-vented bulbul. In the **Kulikātattvanirṇaya*, the name *vāgbulikā* is translated as ‘*ug pa mo*, “Owl.” Here the translators may have tried to understand this name through a synonym or intermediary term. Both the owl and the bulbul have been designated by the name *pecā* or *pheñca*, for instance.⁸¹

“Soft” Bird or Green Pigeon (*Komalā*)

The word *komalā* is translated by Sugiki as “charming”—a reference to birdsong?—following the Tibetan translation ‘*jam pa*. In Hindi, *komala* can mean “soft” or “downy;” the plumage of various babblers (family *Timaliidae*) is said to be characteristically fluffy. Sanskrit poets speak of the “green and soft” (*haritakomala*) wing feathers of the parrot.⁸² The parrot, however, is already present in this series as *Sukī*. There might then be a confusion or play on words with *kamala* here. The cognate words in some Indic vernaculars mean a pale red or warm hue, as in “lotuslike red/orange/pink.”⁸³ One common bird has traits fitting all these senses of *komala*, *kamala* or *kāmala*: the orange-breasted green

⁸⁰ *Vimalaprabhā* on *Kālacakratantira* 3.151d: ... *vāgbulikā gudamukha iti* (ed. Dwivedi and Bahulkar 1994: 121).

⁸¹ Turner (1966: 475 No. 8375), states that cognates of *pecāka* mean “owl.” Dave (1985: 39), however, argues that the same words designate the red-vented bulbul. The Sanskrit name *divāndhā* (“day-blind”) ap-

plies both to a bat (*valgulī*) and (according to Monier-Williams) an owl.

⁸² Dave 1985: 118, 142–144.

⁸³ Turner 1966: 139 No. 2763. Dave (1985: 295, 298), however, applies the name *kamala* to the grey-headed swamphen (*Porphyrio poliocephalus*).

pigeon (*Treron bicinctus*, Figure 4). The light orange, rose and green hues of its plumage blend together smoothly. Its Bengali name, *kamalābuk harijāl*, also means “orange-breasted green pigeon.”

A possible counterpart of the green pigeon in the *Laghutantraṭīkā* tradition is a bird whose name is given as *Pārī* in Cicuzza’s edition.⁸⁴ The corresponding ornithonym in the Kālacakra system is *ghāra*, which is also obscure.⁸⁵ In the *Kulikā*, however, the name of this goddess is translated as *ha ri rda ka ri mo*—probably a garbled form of *hāridrakā*, which is a well attested Sanskrit name for a green pigeon.⁸⁶ Green pigeons feature under this name and related names in Sanskrit catalogues of medicinal meats.⁸⁷ But this interpretation is not corroborated in other sources for the seventy-two fauna goddesses, and may involve some kind of misreading (e.g., of **pārī* as *hārīta*). Alternatively, the name of the fauna goddess Kokilākṣī, meaning “red-eyed,” could apply to certain kinds of green pigeon (*T. bicinctus*, *T. phoenicopterus*), but certainly also to other birds in the wind environ (e.g., the red junglefowl, the ringed parakeet, the Indian roller, the eagle). More definite testimony is needed to positively identify the “Soft” (or “Orange”) bird goddess.

“Big Crow” (*Bṛhatkākī*)

This bird is not a raven, as ravens proper—namely, the North Eurasian raven, *Corvus corax subcorax*, the only raven subspecies found anywhere the subcontinent—do not range into the northeast of India. The “bigger” of the two crow species found in the northeast is the large-billed crow (*Corvus macro-rhynchos*), which is discussed in connection with Droṇakākī in the land environ. Conceptually similar names for the large-billed crow in modern vernaculars include Odia *vrddha kāka* and Malay *gagak paruh besar*. By comparison, the house crow (*Corvus splendens*), the main referent of the word *kāka*, is smaller, and is visually differentiated by its grey neck collar. While this distinction is clear, the moniker “big crow” remains vague and need not refer just to the large-billed crow. The *Laghutantraṭīkā*’s fauna assemblage does not include a name for a large-billed crow; instead, we find obscure names that appear to designate some other kind of black bird.⁸⁸ The word *bṛhatkāka* is not used widely, and was

84 *Laghutantraṭīkā* 5 (Cicuzza 2001: 70 n. 32) records the variants *pārī*, *ṭārī* and *dyārī*, which are all visually similar to **ghārī*.

85 *Vimalaprabhā* on Kālacakra 3.151b: *ghāra iti cillā*. Dave (1985: 234, 245) identifies the *cillā* with the Black Kite (*Milvus migrans*), but the Tibetan *Vimalaprabhā* translates “quail” (*la ba*). Dave suggests that *ghārā* is a whirling movement (cf. Turner 1966: 241 No. 4470, **ghārayati*²) associated

with the Indian robin, on which see Śāmā.

86 Dave 1985: 251, 253, 260.

87 Some properties of *hāridrakamāṃsa* are spelled out in *Carakasaṃhitā* 1.26.84 (ed. Shree Gulabkunverba Ayurvedic Society 1949: 465). *Siddhasāra* 3.20.14 (ed. Emmerick 1980: 2929), discusses *hārīta* meat (*phug ron sngon po*).

88 In the *Kulikā*, the name of Bheḍinī

probably drawn from an earlier Buddhist tantra, the *Śrīvajrabhairava*.⁸⁹ As the name of the “Big Crow” goddess seems to be a circumlocution, it is translated accordingly here.

Ringed Parakeet (Gaḍinī)

The Sanskrit word *gaḍa* means a fetter or leg chain, and it is used in this sense elsewhere in the *Ḍākārṇava*’s fifteenth chapter.⁹⁰ Sugiki translates Gaḍinī’s name as “goldfish-carrier” in accord with Monier-Williams’ dictionary definition of *gaḍa* as a kind of goldfish.⁹¹ No bird could have had such a curious diet.⁹² Although the Sanskrit term “gold fish” (*svaṇamīna*) seems to have been applied to medium-sized cyprinids by the twelfth century,⁹³ goldfish proper (*Carassius auratus auratus*), which are anthropogenically selected for their color mutation, are not known to have been exported outside their native breeding zones in Southern China before the sixteenth century.⁹⁴ Taking *gaḍa* in its attested sense of “fettters,” Gaḍinī could be understood as an ankle-chained bird, perhaps as some kind of parrot, although the parrot is already represented in the same series.

The word *gaḍa* or *nigaḍa* is assimilated to *gala*, “neck,” in some vernaculars, according to Turner.⁹⁵ This could designate a bird with a collar or ring around its neck. A bird that fits this description well is the rose-ringed parakeet (*Psittacula*



Figure 5: Rose-ringed parakeet

(*Laghutantraṭīkā* 55) is translated as *bya ka ka mchu rings mo*, “crow with a long beak”; Anilā (67) is a “black owl” (see also note 134).

⁸⁹ *Śrīvajrabhairava* 2 (ed. n. a. 2007:168). This is one of the tantras named in chapter 50 of the *Ḍākārṇava* (Sugiki 2022: 10).

⁹⁰ *Ḍākārṇava* 15.38c, ed. Sugiki 2022: 9.

⁹¹ Neither of the scientific names associated by Monier-Williams with the lexeme *gaḍa*—*Ophiocephalus lata* (an unaccepted synonym for *Channa punctata*, a kind of snakefish) or

Cyprinus garra (*Tariqilabeo latius*, the gangetic latia)—are accurately described as goldfish.

⁹² No such birds are mentioned in Ali and Ripley 1978. We find semantically broader zoonyms such *jhaṣāśana*, “piscivorous.” See also *Karkaṭī in this series.

⁹³ Sadhale and Nene propose to identify the classical *svaṇamīna* with *Barbus sarana*, i.e., the olive barb (*Systemus sarana*), which has slightly green metallic scales.

⁹⁴ Wang et al. 2013.

⁹⁵ Turner 1966: 410 No. 7157a.

krameri, Figure 5), whose plumage has a distinct pink and black neck ring, and “is a very common resident of Bangladesh.”⁹⁶ It is called the “neck-ornamented” bird, *galamanīkā*, in Assamese. Dave finds that these birds are classically described as “the parrots with a three-colored band around the neck.”⁹⁷ The rose-ringed parakeet is so common in India that it could be regarded as the main referent of the parrot goddess Sukī, but the word *śuka*, “parrot”, is broad in scope. In modern vernaculars, words descended from Sanskrit *śuka* refer to parrots that do not have ring-like markings around their necks, such as the vernal hanging parrot (*Loriculus vernalis*).⁹⁸ As Sukī already has a direct counterpart in the *Laghutantraṭīkā*’s goddess Śukī, the counterpart of Gaḍinī is arguably Rajakī, another name for a parrot given in Sanskrit lexicons and the name of a caste woman (a “dyer”) in the *Laghutantraṭīkā*.⁹⁹

Pheasant (Kapiñjalī)

The name *kapiñjalī*, as used in classical texts, generally identifies the female grey francolin (*Ortygornis pondicerianus*).¹⁰⁰ This species has softer coloration and camouflage patterns than the black francolin, which has been mentioned in connection with Citrī and Tittirī. Dave, however, notes that there are other valid identifications of the ornithonym *kapiñjala*.¹⁰¹ In Hindi and Nepali, the cognate name *kalij* specifically denotes the eponymous kalij pheasant (*Lophura leucomelanos*) of the Himalayas and far eastern India. The Tibetan *Ḍākārṇava* translates this name as *gong mo sreg*, which refers to snowfowl such as *Tetraogallus tibetanus*.¹⁰² Snowfowl are visually similar to the chukar partridge (*Alectoris chukar*), namely, Cakorī, the presumed counterpart of this goddess in the *Laghutantraṭīkā*. The chukar does not, however, occur in the northeastern Indian bioregion of interest. Here the name of this goddess is translated as Pheasant, in the technical sense of a member of the Phasianinae subfamily, which covers all possibilities.

“Caller” (Mantrī)

The kind of bird that “calls,” mantra-like, is of course an overly broad designation. Parrots are classically known as “superb talkers” (*mañjupāṭhaka*). If Mantrī is to be more precisely identified as a mockingbird or mimic, then one such bird, in Dave’s view, is the greater racket-tailed drongo (*Dicrurus paradiseus*).¹⁰³ However, its vernacular names (Bengali *bhīmrāj*, Hindi *bhāmgarāj*)

96 Alam, Sarowar, Chowdhury, et al. 2012: 134.

97 Dave 1985: 118, citing Daṇḍin’s *Kāvyaḍarśa* 2.9: *trivarnarājibhiḥ kañṭhair... śukāḥ*.

98 Dave 1985: 143–144.

99 *Abhidhānaviśvalocaṇa* 142: *kīre ’pi rajakaḥ*

(ed. Jamspal and Wayman 1992: 25).

100 Dave 1985: 283. That is, *kapiñjala* is an attested synonym of *gauratittira*.

101 Dave 1985: 486.

102 Holler 2009.

103 Dave 1985: 65.

evoke its coloration—"dark" or "bee-black" plumage and red eyes—not its mimicry. According to Dave, mimicry is narrowly designated by Sanskrit terms such as "faithful voice" (*satyavāk*).¹⁰⁴ Mantrī's identity can again be interpreted with reference to the *Laghutantraṭīkā* tradition. There is no direct match in the wind environ for the goddess Kokilā, "Koel." The piercingly loud call of the Asian koel (*Eudynamys scolopaceus*) is one of the well-known traits of the species.¹⁰⁵ There is at least one classical comparison of the koel's call to a mantra offering.¹⁰⁶ So the identification of the 'mantra bird' as a koel is justified, but it lacks more specific support from the Indic corpus. The name is likely to be another inheritance from the *Śrīvajrabhairava*, in which the *mahāmantrī* is one of the birds trampled by the chief deity. The Tibetan translators of the *Śrīvajrabhairava* differ very widely in their identifications of this bird. According to the translation of the tantra itself, *mahāmantrī* is a rooster (*khyim ba*).¹⁰⁷ In the exegesis of this tantra, this name is variously translated as a "demon bird" or owl (*srin bya*),¹⁰⁸ a "crowing" bird (*ka ka*), a parrot (*ne tso*) and so on.¹⁰⁹ As the name of Mantrī has too many valid referents to narrow down in this context, it is translated literally: the "Caller" Bird.

Woodpecker (*Kāṣṭhacaṭī*)

Most ornithonyms that have a name element corresponding to Sanskrit *kāṣṭha*, "wood, timber," are woodpeckers, although a couple of other kinds of "wood" birds are mentioned in Sanskrit literature.¹¹⁰ The name *kāṣṭhacaṭī* is taken to be a portmanteau of an established Sanskrit name for a woodpecker, such as *kāṣṭhak-utṭa* or *kāṣṭhakūṭa*, and an abbreviation for *caṭaka*, a name for small passerine birds. A common woodpecker in Eastern India is the black-rumped flameback (*Dinopium benghalense*), Bengali *bānīlā kāṭhṭhōkorā*, "wood striker."¹¹¹ While the significance of the *kāṣṭha*- name element seems to be straightforward, no direct counterpart for *Kāṣṭhacaṭī* has been located in the *Laghutantraṭīkā* assemblage. As *Caṭakī* of the *Laghutantraṭīkā* (44) is already correlated with *Caṭikā* (a diminutive form¹¹²) in this series, *Kāṣṭhacaṭī* may be a substitute for a different, unidentified ornithonym in the set of seventy-two names.

¹⁰⁴ Dave 1985: 66.

¹⁰⁵ A local name of the Pacific koel (*Eudynamys orientalis*) is "cooe bird" (Cayley 1931: 14), which means that it calls over a long distance.

¹⁰⁶ *Subhāṣitaratnakośa* 550cd (ed. Kosambi and Gokhale 1957: 100): *janmāntare virahaduḥkhavināśakāmā puṁskokilābhīhitim-antrapadair juhōti*.

¹⁰⁷ D468, 152b; cf. ed. n. a. 2007: 166.

¹⁰⁸ According to Dave, "demon" (*kaṭapru* or *rākṣasa*), Tibetan *srin*, should designate an

owl with a grasslands habitat—in this context, for instance, the Eastern barn owl (*Tyto javanica*) or Australasian grass-owl (*Tyto longimembris*).

¹⁰⁹ D1977 & D1997, D1982, and D1983, respectively.

¹¹⁰ Dave 1985: 119–120, 143–44, 395. In one case *kāṣṭha* is a timber-related measure.

¹¹¹ Alam, Sarowar, Chowdhury, et al. 2012: 80.

¹¹² According to Dave (1985: 494), flycatcher-

Shelduck (Cakravākī)

The name *cakravāka* designates the ruddy shelduck (*Tadorna ferruginea*), as is evident from its vernacular names: Hindi *cakavā*, Bengali *cakhācakhi*, Marathi *cakravāka* and so on.¹¹³ The Tibetan name *ngur pa ma*, likewise, denotes the ruddy shelduck in particular.¹¹⁴ Another bird of the *Tadorna* genus—namely, the common shelduck, whose non-breeding range extends to coastal Bangladesh—shares the same name.¹¹⁵

“Tree-Hater” or Watercock (Vṛkṣāraṇī)

A bird that “roosts in a tree”—to take the reading of the manuscript (*vṛkṣa-araṇī*) at face value—is not identifiable with a single species of bird. Today, treepie birds, which occur in northeastern India,¹¹⁶ are known for their reluctance to feed on the ground. This trait does not, however, seem to have been well observed in the classical era. It is also doubtful that the manuscript reading *vṛkṣāraṇī* makes good sense even as a semi-vernacular form.¹¹⁷ The counterpart of this goddess in the *Laghutantraṭīkā* is *Vṛkṣāriṇī*, whose name is translated literally as “enemy of the tree” (*ljon shing dgra ma*).¹¹⁸ The same name is translated in the **Kulikātāt-tvanirṇaya* as *bya ko dha ma* (and variants¹¹⁹). While this “kodha bird” has not been identified, its name is similar to certain vernacular names for the kora or watercock (*Gallicrex cinerea*), especially Bengali *koṛā*.¹²⁰ As the kora is an aquatic bird, it might be suited to the moniker “tree-hater.”

*“Crabber” (*Karkaṭī)*

The manuscript reading *karkkavī* does not convey a known Sanskrit word, and the transliterated name *ka kka mo* in the Tibetan translation gives no further clues. It is conjectured that *karkkavī* is a miscopying of a word such as *karkkaṭī* or *karkkarī* written in a script (such as Proto-Bengali-cum-Proto-Maithili) in

ers, warblers and wren-babblers are *caṭikās*. Following the Tibetan translation *mchil pa* (see Holler 2009) and Bengali *gecho caṛāi*, *Caṭikā*’s nominate species should be the Eurasian tree sparrow (*Passer montanus*).

¹¹³ Dave 1985: 316, 422, 433. The Bengali name, strictly speaking, refers to both the hen and the drake (which are often paired in classical texts), according to Praharaj’s entry for *chakuāchaki*.

¹¹⁴ Holler 2009.

¹¹⁵ See Alam, Sarowar, Chowdhury, et al. 2012: 80 for local names of *Tadorna tadorna*: Bengali *pāḍi cakācaki*, etc.

¹¹⁶ One common species is the Rufous treepie (*Dendrocitta vagabunda*), Bengali

khoira haricācā; see Alam, Sarowar, Chowdhury, et al. 2012: 207. According to Dave (1985: 12) and Sheshadri (2017: 7), this bird is designated by the Sanskrit word *kurava(ka)*.

¹¹⁷ See the discussion of *Araṇī*, land environ 26, q.v.

¹¹⁸ The ornithonym *vṛkṣāri* in *Kālacakratantra* 3.151d is translated in the same way: *ljon shing dgra*.

¹¹⁹ The Sde dge printing reads *bya ko dha ma*, and the Snar thang and Qianlong printings read *bya ko rdi ma*.

¹²⁰ Dave 1985: 301. Similar names include Marathi *pāṇa-komḃaḍā* and Tamil *gholi*.



Figure 6: Greater adjutant.



Figure 7: Crab plover.

which the grapheme for *v/b* is confusable with *ṭ*, *c*, and *r*. The word *karkaṭī* has definite attestation as a Sanskrit ornithonym,¹²¹ but little other information is available in the Sanskrit corpus. It can be interpreted as a descriptive name or as onomatopoeia. Dave finds that the greater adjutant (*Leptoptilos dubius*, Figure 6) was called by the name *karkaṭaskandha* or *karkaraskandha*, “pot around the shoulders,” because of its neck pouch.¹²² The name of the lookalike painted stork in Bihar is *kaṅkāri*.¹²³ But these names are too dissimilar to the name *Karkaṭī*, which was probably intended to have a more straightforward meaning. Alternatively, the demoiselle crane (*Anthropoides virgo*) is referred to by sound-alike names—Sanskrit *karkareṭu*, Hindi *karkaṭiyā* and Gujarati *karakaro*—which are explained by Dave as being imitative of the bird’s call. The demoiselle crane is called *karkaṭa* or *karkaṭu* (as well as *karkareṭu*, etc.) in Odia,¹²⁴ and so would be a fitting counterpart for the otherwise unmatched taxon *Kruñcā*, “Crane,” of the *Laghutantraṭīkā* assemblage.

In Dave’s view, the bird that most deserves the name “crabber” (*karkaṭa* or *karkaṭaka*), in the sense of having a shellfish diet, is the stork-billed kingfisher (*Pelargopsis capensis*).¹²⁵ Its crab-eating habit has been independently observed. Most of the stork-billed kingfisher’s vernacular names are not cognates of the word *karkaṭa*, but they do refer to its fishing ability. Other birds, of course, feed on crustaceans. The eponymous crab plover (*Dromas ardeola*, Figure 7), for instance, has a beak that is especially suited for eating crabs. The crab plover’s Bengali

¹²¹ See, e.g., *Abhidhānaviśvalocanā* 450a (ed. Jamspal and Wayman 1992:79): *khage ca karkaṭī*.

¹²² Dave 1985: 392–393.

¹²³ Ali and Ripley 1978: 93, No. 60.

¹²⁴ Praharaj 1931–40: 1367–1368.

¹²⁵ Dave 1985: 156.

name (*kāṁkārā jiriṇjā*) refers to its association with crabs, but it is not known whether such a name goes back to the medieval era. Furthermore, *karkaṭa* or *karkkaṭi* is recorded as a name for a shrike (*Lanius cristatus*) in contemporary West Bengal.¹²⁶ Its etymology has not been studied—shrikes are also called “butcher birds” in Bengali and other languages, due to their habit of storing killed food—and again, there is the question of how old or widespread this name might have been. The etymological association with crabs is apparent from the parallel with the goddess Karkaṭi, who features both in the water environ and in the non-avian fauna assemblage of the *Kulikā–Laghutantraṭikā* tradition. Since no outstanding candidate for this avian *Karkaṭi has been found, her name is left open to identification with one of the alternatives.

Cormorant (*Jalakākī*)

Sugiki translates this name as “water crow,” which is not a known type of crow. The Tibetan translation here gives a name for a cormorant, *so bya mo*, and the translation of *jalakākī* in the Tibetan *Laghutantraṭikā*, *chu skyar mo*, likewise means a cormorant or fish-eating bird.¹²⁷ The identification is sealed by the fact that one of the names for the great cormorant (*Phalacrocorax carbo*) in Bengali and Hindi is *jal kāk*, which corresponds directly to the Sanskrit name.¹²⁸

Flying Squirrel (*Bilādī*)

Here Sugiki’s edition follows the manuscript reading *bilādī* and translates “cat,” after Tibetan *byi la mo* (**biḍālī*), and adds: “perhaps regarded as a flying creature.” The manuscript reading has support from contemporary Indian vernaculars, and can therefore be accepted over Sanskrit *biḍālī*.¹²⁹ More work is, nonetheless, needed to establish what is meant by a “cat” avifauna taxon. A few birds have cries that sound like the yowling of a cat.¹³⁰ The Oriental bay owl (*Phodilus badius*) is such a bird, according to Dave, but this owl only calls regularly in the mating season, and its range extends only to the northeastern fringes of India. Dave further states that the word *birāla* denotes the flying fox in Prakrit, if it is used in reference to avifauna (*pakkhi*). In eastern India, however,

¹²⁶ Banerji 1972: 64; Alam, Sarowar, Chowdhury, et al. 2012: 207.

¹²⁷ According to Holler (2009), *so bya rog po* denotes the great cormorant, and *chu skyar po* denotes any “fish-eating water bird in general.”

¹²⁸ Dave 1985: 371–372; Alam, Sarowar, Chowdhury, et al. 2012: 119.

¹²⁹ Turner (1966: 521–522 No. 9237) lists Bengali and Odia *bilāi* as cognates. *Bilāḍa* is

also a word for a cat in Hindi and Maithili.

¹³⁰ For instance, the call of the green catbird (*Ailuroedus crassirostris*) is uncannily like that of a cat (as this author can attest, having often heard it at Mary Cairncross Reserve); see, for instance, Andrew Spencer’s 2016 recording (<https://macaulaylibrary.org/asset/99560791>).

This species is, however, endemic to eastern Australia.



Figure 8: Giant flying squirrel.



Figure 9: Indochinese roller.

the names for the flying fox (*Pteropus giganteus*) are cognates of Sanskrit *vālguḍa*: *bādur* or *bāduṛ* in Bengali, Odia *bāduḍi* and so on.¹³¹

Bilāḍī, as a kind of “cat,” should be identified with an arboreal mammal that is more cat-like in appearance than a fruitbat. The common giant flying squirrel (*Petaurista philippensis*, Figure 8) is such a mammal, with its long bushy tail, somewhat feline facial features and size about that of a cat. The cognate word *biṛālī* designates a squirrel in Bengali and Odia,¹³² as well as other felid-like animals with different habitats (otters, civets). Flying squirrels are found in hilly rainforest across the subcontinent, and they have been noticed in Indian religious art.¹³³ Who might then be Bilāḍī’s counterpart in the *Ḍākārṇava*’s kin texts? The goddess Anilā in the *Laghutantraṭīkā* has no obvious identification, and her name was transliterated into Tibetan: *a ni la mo*.¹³⁴ However, *aṇil* is a common Dravidian word for a squirrel, and it also refers to flying squirrels.¹³⁵ There are other possible instances of Dravidian words being used as a fauna name in this context; see the sections on Kuṅkumarolā (alias Ambarakī) and Karṇāṭī.

¹³¹ Turner 1966:675 No.11584. For some local names see Alam, Sarowar, Chowdhury, et al. 2012:71. For other Indic names for bats and fruitbats see Pinault 2014:208–209.

¹³² Alam, Sarowar, Chowdhury, et al. 2012:194–195. The three-striped palm squirrel (*Funambulus palmarum*), a kind of *kāṭhaviṛālī*, is distinguished from the flying fox (*Pteropus giganteus*), *bāduṛ*. For Odia *kāṭhaviṛālī* etc. see Praharaj 1931–40:1473.

¹³³ On squirrels in ancient Indian art, see van der Geer 2008:270–273, figs. 341, 342.

¹³⁴ Anilā’s name is translated in the *Kulikā* as *bya ’ug nag mo*, “black owl,” which seems to understand *nīlā* (perhaps losing the initial *a* in *sandhi* with the final *-ā* of the preceding name)—doubtfully so, as owls with dark plumage native to India, such as the brown boobook, *Ninox scutulata*, are rarely found in Tibet, and vice versa. Likewise, the Tibetan *Kālacakṛatantra* transliterates *a nī la*.

Bluejay or Indochinese Roller (Nīlagrīvī)

Sugiki interprets this name as “perhaps from Nīlākṣī,” i.e. “goose.” A number of bird species have blue neck plumage, but many of them already exist in the wind environ; the peafowl, for instance,¹³⁶ manifests as Māyūrī. According to Dave,¹³⁷ the classical names *nīlagrīva* and *nīlakaṇṭha*, “blue-throated,” usually refer to the Indian roller (*Coracias benghalensis*), which has vivid blue plumage. There are cognate names in many Indian vernaculars, such as Hindi *nīlakaṇṭha pakṣī*, Bengali *nīlakaṇṭha pākḥī* and so on. It so happens that the plumage of the Indian roller is, in most cases, blue everywhere except its throat. However, the name *nīlakaṇṭha* today also denotes the closely related Indochinese roller *Coracias affinis*, Figure 9), which has prussian blue feathers around its neck, and occurs in the area of interest in the east and north of the Ganges Delta.¹³⁸ The generic name bluejay, which is applied to these rollers and other birds with blue plumage, is adopted in the present translation to maintain consistency with the original wording.

“Saffron Stripe,” Golden Oriole (Kuṅkumārōlā)

Following the Tibetan translation *gur gum lce can ma*, Sugiki reads the name of this goddess as Kuṅkumālōlā and translates “some bird whose ‘tongue [is colored] saffron’.” In general, a bird’s tongue is not a defining trait of a species in classical Sanskrit texts. If we accept *-lōlā* (not used in classical ornithonyms) over the manuscript reading *-rolā*, *kuṅkumālōlā* could have other interpretations: a “saffron (thread-like) tongue” or a “tongue (that tastes) saffron (flower stigma).” Many birds, again, have a slender tongue with papillae that could be likened to saffron stigma, especially those of the flowerpecker family, Dicaeidae. The pale-billed flowerpecker (*Dicaeum erythrorhynchos*) has vernacular names such as Bengali *phulacūṣaki*, “flower-sucker.” The purple sunbird (*Cinnyris asiaticus*),¹³⁹ likewise, is called a “honeysucker” (*madhucūṣaki*) in Bengali. But these birds are known for their nectar robbing, and are not specifically identifiable as “saffron-thread-tongued.” According to Dave, a *kuṅkuma* name element should denote saffron-colored (orange-yellow) plumage.

The name element *rolā* is used with reference to the purple-rumped sunbird (*Leptocoma zeylonica*, Figure 10), which is associated with the name *bhr̥ṅgarola* in Sanskrit.¹⁴⁰ This is a nectarivorous bird, capable of hovering, and the male has

¹³⁵ According to the University of Madras (1924–36) *Tamil Lexicon*, the words *paravai-y-aṇil* and *mara-v-aṇil* designate two kinds of flying squirrel. There are also cognate words in Malayalam and Kannada.

¹³⁶ *Aṣṭāṅganighaṇṭu* 352: *mayūro* [...] *nīlakaṇṭho bhujaṃgabhuḥ*.

¹³⁷ Dave 1985: 17.

¹³⁸ See del Hoyo et al. 2020 for its range and the local names *cīnā nīlakaṇṭha* (Bengali), *nīlakaṇṭha* (Assamese) and *nīlakaṇṭha* (Nepali).

¹³⁹ Dave 1985: 86, 114–115.

¹⁴⁰ Dave 1985: 99 n. 4, 114, 115.



Figure 10: Purple-rumped sunbird.



Figure 11: Indian golden oriole.

a bright yellow underside. The purple-rumped sunbird might then also fit the name *kuṅkumarola*. Dave understands the *bhr̥ṅga* element of *bhr̥ṅgarola* to refer to the “bee(-black)” coloration of the bird’s back and nape, but does not state what exactly *rola* would mean. In Odia and Bengali, *rolā* means a “stripe left on the body.”¹⁴¹ Kuṅkumarolā would then be a bird with yellow-striped plumage. If so, her counterpart in the *Laghutantraṭīkā* can be conjectured to be Ambarakī. Her name was opaque to the Tibetan translators, who all resorted to transliteration. Dave, however, identifies birds with the name element *aṃḃa*, “mango,” as Indian golden orioles (*Oriolus kundoo*, Figure 11).¹⁴² These birds have a double association with mangoes: they have mango-yellow and black stripes and feed on mango juice, as is reflected in the bird’s Tamil name, *māṅghuyil*. Ambarakī and Kuṅkumarolā are thereby identified as two Sanskrit synonyms for the golden oriole in this tantric tradition.

Jungle Quail (Vāṭirī)

The name Vāṭirī is a form of *vartira* or a similar Sanskrit word for a quail.¹⁴³ In Dave’s understanding, the names deriving from the root \sqrt{vrt} , “to turn, move,” designate the bird’s scurrying across the ground “like a rolling ball.”¹⁴⁴ There is good support for this identification in Sanskrit lexicons and in the vernaculars: Hindi *baṭera*, Bengali *baṭera*, Odia *bārttika* or *barttira* and so on. The jungle

¹⁴¹ Praharaj 1931–40: 7217, *Rolā*. The cognate word *ḍora* is linked with the etymon *davara*, “string,” by Turner 1966: No. 6225.

¹⁴² Dave 1985: 77: *aṃḃākāpīlika*, *aṃḃākipīlika*. See also Turner 1966: 57 No. 1268, *āmrā*.

¹⁴³ Monier-Williams lists *vārtaka*, *vārtāka* and *vārtikaas* names for quails. Dave (1985: 269) regards *vartira*, *vartikā* and so on as more specialized names.

¹⁴⁴ Dave 1985: 285.



Figure 12: Red-wattled lapwing.



Figure 13: White-rumped shama.

bush-quail (*Perdica asiatica*) is called both *varṭira* and *lāva*, and *Lāvī* is the presumed counterpart of *Vāṭirī* in the *Laghutantraṭīkā*, who manifests as a button-quail (*lāva*).¹⁴⁵

“Lame Leg,” Lapwing (Kākajaṅghakī)

Sugiki translates *Kākajaṅghakī*’s name as “some bird with crow-like shank.” A crow’s legs are not especially distinctive. As many of the birds that have noteworthy legs are waders—they tend to have long legs and to stand on one foot—*kāka* should be taken to mean a “lame, hobbled” leg.¹⁴⁶ Dave regards the Sanskrit epithet *dirghajaṅgha*, “long-legged,” as typical of large herons and storks.¹⁴⁷ A wader bird that is often seen standing with one of its legs bent features in the *Laghutantraṭīkā* tradition: *Ṭiṭṭibhī*, whose imitative name uniquely designates the red-wattled lapwing (*Vanellus indicus*, Figure 12) in classical and contemporary contexts.¹⁴⁸ *Ṭiṭṭibhī*’s name is glossed as “foot retracted upwards” (*pādordhvaśāyī*) in the *Kālacakra* system.¹⁴⁹ This is semantically similar to the epithet *kākajaṅghakī*. The ornithonym *koyaṣṭi* is interpreted by Monier-Williams as referring to the lapwing’s “leg-sticks,” whereas Dave finds that it refers to the jutting fleshy appendage on the head of the watercock¹⁵⁰ (see *Vṛkṣāriṇī*).

¹⁴⁵ Dave 1985: 287.

¹⁴⁶ *Kāka* may also be a transposition error for *ekajaṅghakī*, “one-legged.”

¹⁴⁷ Dave 1985: 392.

¹⁴⁸ Dave 1985: 356.

¹⁴⁹ *Vimalaprabhā* on *Kālacakratantrārāja* 3.151d: *pādordhvaśāyī ṭiṭṭibhikā*; D1346: *rkang steng nyal*.

¹⁵⁰ Dave 1985: 280.

Shama (Śāmā)

The name shama, Sanskrit *śyāma*, is given to various magpie-robins in India. According to Dave, *śyāma* denotes dark or bluish coloration, as seen in the shamas' glossy black plumage.¹⁵¹ The same quality is reflected in the name of the genus *Copsychus*, "black-headed." The white-rumped shama (*Copsychus malabaricus*, Figure 13) is particularly associated with the Hindi names *śamā* or *śāmā*, Bengali *śyāmā* or *śāma*, and Odia *śyāmā pakhi*.¹⁵² The counterpart of Śāmā in the *Laghutantraṭīkā* is Bhagavatī. This ornithonym is a recorded synonym of *durgā*,¹⁵³ which Dave identifies with the Indian robin and other so-called blackbirds, in part because of the goddess's dark ("impenetrable," "Durgā-like") complexion.¹⁵⁴ *Kālacakrapāda and the *Vimalaprabhā* give the synonym *potakī*, which is another name for an Indian robin, for Bhagavatī.¹⁵⁵

Red-backed Kite (Lohapṛṣṭhā)

The manuscript reading *lehapiṣṭa* is adopted in Sugiki's Sanskrit edition, and the Tibetan edition accepts the still more doubtful reading *lehasṛṣṭa*.¹⁵⁶ The Tibetan *Ḍākārṇava* translates this ornithonym as *kang ka mo*, identifying it as a *kaṅka* scavenger. One type of *kaṅka* is called *lohapṛṣṭha*, "red-backed," in Sanskrit texts such as the *Amarakośa*, which was almost certainly the translators' reference for this name.¹⁵⁷ Dave convincingly associates the *kaṅka*-type *lohapṛṣṭha* with the red-backed or Brahminy kite (*Haliastur indus*, Figure 14), which has rusty red plumage apart from its white head and breast.¹⁵⁸ The *leha-*



Figure 14: Red-backed kite

¹⁵¹ Dave 1985: 47; see also Turner 1966: 734 No. 12664.

¹⁵² According to Praharaj 1931–40: 7825, this name designates "a species of singing bird."

¹⁵³ *Rājanighaṇṭu* 19.121 (ed. Bhaṭṭācāryya et al. 1933?: 470).

¹⁵⁴ Dave 1985: 13, 46.

¹⁵⁵ *Vimalaprabhā* on *Kālacakra* 3.150d; Dave 1985: 45–46.

¹⁵⁶ Sugiki 2022: 253.

¹⁵⁷ *Amarakośa* (*siṃhādivarga*) 16 (ed. Vidyābhūṣaṇa 1911: 133): *lohapṛṣṭhas tu kaṅkaḥ syāt*; D4299: *rgyab dmar dang ni kaṅ ka yin*.

¹⁵⁸ Dave 1985: 213. The non-scavenger species designated by this name, according to Dave (1985: 164), is the (relatively obscure) red-headed trogon *Harpactes erythrocephalus*, which is found in India only at its easternmost fringes and in the Himalayas.

part of the lemma is evidently a miscopying, while *-piṣṭa* affects vernacular pronunciation, albeit with little support in attested vernacular forms.¹⁵⁹

The counterpart of the red-backed kite in the *Laghutantraṭikā* would be one of the birds of prey (Tibetan *'ol ba*, *khra*, or *hor pa*), some of which have not been precisely identified. The goddess called Pājī,¹⁶⁰ “Falcon,” in Cicuzza’s edition has the variant name Yājñī in some manuscripts.¹⁶¹ A bird “of the fire sacrifice (*yajña*)” would be the *śyena* or falcon, whose form inspires the shape of a Vedic altar. However, the *śyena* is more likely to be embodied in the goddess *Bheḍiṇī, whose name is glossed as *saṃcāṇa*,¹⁶² that is, as the shikra hawk *Tachyspiza badiā*.¹⁶³ The moniker Kokilākṣī, “Ember Eye” or “Koel Eye” (the koel’s eyes are deep red¹⁶⁴), fifty-eighth in the *Laghutantraṭikā*’s assemblage, seems to be interpreted in the *Kulikā* as the *kukkubha* or great coucal (*Centropus sinensis*).

“Frog,” Frogmouth or Nightjar (*Dardurī*)

Here Sugiki reads “Daddarī (for Dardarī),” in line with the Tibetan transliteration *da dda ri mo*, and translates “partridge.” The manuscript reads *darddurī*. The name “Frog” (*dardura*) would not mean a frog-catching bird such as a kingfisher or wader (see *Karkaṭī*), insofar as no bird in South Asia seems to have been known for such a diet. The birds that most resemble a frog are nightjars, as Dave points out.¹⁶⁵ This is a compelling association: certain nightjar species are flat-headed, squat, wide-mouthed birds with streaked brown plumage. Nightjars belong to the same family as frogmouths, *Caprimulgidae*. Although the names of nightjars in eastern Indian vernaculars often relate to the birds’ call, not their appearance, Dave states that froglike qualities are still referenced in their South Indian names. Species found in the region of interest include the Indian nightjar (*Caprimulgus asiaticus*) and the large-tailed nightjar (*Caprimulgus macrurus*,). This goddess has no discernible counterpart among the avian fauna of the *Laghutantraṭikā*; as her name is paralled in the water environ, she may be a substitute for an unidentified avifauna taxon.

¹⁵⁹ Turner 1966: No. 8371, *prṣṭhā*, gives the Prakrit equivalents *piṭṭha*, *paṭṭha*, Hindi *pūṭh*, etc.; cf. Bengali and Odia *pāchā*, etc.

¹⁶⁰ Pājī is evidently a contraction of *pājika*, which, according to Monier-Williams, is a falcon, and whose name, accordingly, is translated as *hor mo* in the Tibetan *Ḍāk-inīvajrapaṇjara* (D419, 42b).

¹⁶¹ Cicuzza 2001: 70, n. 26.

¹⁶² *Vimalaprabhā* on *Kālacakra* 3.151b: *bhedra*

iti saṃcāṇa. According to Dave (1985: 144), the *bhedra* name element should refer to cracking seeds, as the aforementioned vernal hanging parrot is supposed to be known to do.

¹⁶³ Dave 1985: 237.

¹⁶⁴ *Rājanighaṇṭu* 19.144a, 145a (ed. Bhaṭṭācāryya et al. 1933?: 473: *kokilā* [...]) *tāmrākṣī*.

¹⁶⁵ Dave 1985: 171.

Eagle, “Jackal” (*Sṛgālinī*)

This name is given in Sugiki’s edition as *Sṛgālinī* (“Jackal”) but translated as “some bird hunting a deer,” following the Tibetan translation *ri dgas dgra* without comment. The latter interpretation corresponds to the name of *Mṛgāriṇī* (“Deer-Foe”) of the *Laghutantraṭīkā*¹⁶⁶ and to *mṛgaripu* of the *Kālacakratāntra*.¹⁶⁷ However, the manuscript reading *sṛgālinī* seems to be a synonym of *mṛgāriṇī* rather than a miscopying, as the glyphs for *ri* and *li* are not confusable. In the avifaunal context, a *śṛgāla* is a “jackal of the skies” with speed, loud vocalization, predatory habit and so on comparable to that of a jackal.¹⁶⁸ Dave identifies the tawny eagle (*Aquila rapax*) as a typical *śṛgāla* bird. Eagles have often been observed to attack deer, especially foals.¹⁶⁹

THE LAND ENVIRON (ḌĀKĀRṆAVA 15.135–138)

षड्विंशद् योगिनीनां तु भूचरीणां यथाक्रमम् ।
 सिंही^१ व्याघ्री^२ +भाम्मा^३ शशी^४ गजी^५ मृगी^६ मार्जारकी^७ ॥ १३५
 गावी^८ महिषी^९ तुरगी^{१०} जम्बुकी^{११} गण्डी^{१२} चमरा^{१३} ।
 मूषी^{१४} गर्दभी^{१५} भेडी^{१६} च अजकी^{१७} एडकी^{१८} क्रमात् ॥ १३६
 श्वानी^{१९} सूकरी^{२०} भल्ली^{२१} च दण्डारी^{२२} मूञ्जकी^{२३} तथा ।
 वेसरा^{२४} तु विलाषी^{२५} च अरणी^{२६} बृहच्छ्वानिका^{२७} ॥ १३७
 द्रोणकाकी^{२८} शार्दूली^{२९} च व्याडा^{३०} चित्रिणी^{३१} कुटिका^{३२} ।
 नकुली^{३३} कृकी^{३४} गुही^{३५} तु ग्रामनिवासिनी^{३६} परा ॥ १३८

^a भाम्मा ॥ conj.; MS, ed.: भीम्मा

^b शशी ॥ MS; ed. corr.: शशी

^c मार्जारकी ॥ corr. (unmetrical); MS: मार्जरिकी; ed.: mārjārikī “(for mārjārakī).”

^d गावी महिषी corr.; MS, ed.: गाविमहिषी

^e जम्बुकी गण्डी चमरा ॥ corr. (unmetrical); MS: ज म्बु की ग ण्डी च म राः; ed.: jambukī-gaṇḍī-camarāḥ

^f श्वानी ॥ ed. corr.; MS: स्वा नी

^g अ र णी ॥ MS (read: आरण्यी); ed.: araṇyī

^h बृहच्छ्वानिका ॥ em. (unmetrical); MS: बृ ह स्वा नि का; ed.: बृहश्चानिका

ⁱ गुही ॥ em.; MS, ed.: गुहा

The thirty-six terrestrial *yoginī*s, in respective order, are:

¹⁶⁶ The Tibetan *Laghutantraṭīkā* likewise translates *ri dgas dgra ma* for *mṛgāriṇī*, sic (Cicuzza 2001: 70).

¹⁶⁷ *Kālacakratāntra* 3.151b, ed. Dwivedi and Bahulkar 1994: 121.

¹⁶⁸ Dave 1985: 208, 230. The jackal is itself defined as a “lurer of deer” in *Aṣṭāṅganighaṇṭu* 351ab: *śṛgālo*[...] *mṛgadadhūrtakaḥ* (ed. Sharma 1968–69: 45).

¹⁶⁹ Riney 1951.

Lion, Tiger, Dusky [Leopard], Hare, Elephant, Deer, Cat,
 Cow, Water Buffalo, Horse, Jackal, Rhino, Yak,
 Mouse, Donkey, Sheep, Goat and Horned Sheep, in order,
 Hound, Swine, Bear, Rutting Elephant and Muntjac;
 Mule and Snake, Wild Dog, Mastiff,
 Large-Billed Crow, Panther, Carnivore, Spotted [Deer], Camel,
 Mongoose, Lizard, Monitor Lizard and lastly the Village [Dog].

“Grim Growl” (†*Bhīmbhāt*) or “Dusky” (*Bhāmbhā*)

The lemma *bhīmbha* is not found in dictionaries. Sugiki relates it to *bhambhārava*, a word for cow mooing, but the differences in wording are not explained, and the cow already features in the same series under the name Gavī. The Tibetan translators and the ritual manual authors mostly follow the manuscript reading *bhīmbhā*. This word is probably analogous to zoonyms formed with a *-bha* suffix to denote vocalization, such as the aforementioned *ṭiṭṭibha*, “lapwing,” as well as *kukkubha*, “coucal bird,”¹⁷⁰ *karabha*, “camel,” or *gardabha*, “donkey.” The compound *bhīmabha* would then mean something like “grim growl.” But if *bhīm(a)bha* is a generic name for a large felid or jungle animal, there is no apparent reason why such an odd word would be used, especially when other names with this meaning are used in the same series (Śārdūlī, 29; Vyāḍā, 30). It is proposed here to read *bhāmbhā* as a *vṛddhi* form meaning “smoky” and in connection with the previous name, Vyāghrī. The felid known for its “smoky, dusky” coat in the far northeast of India is the clouded leopard (*Neofelis nebulosa*, Figure 15).

The goddess Śālījātakā of the *Laghutantraṭīkā* tradition, “Civet,”¹⁷¹ has no clear counterpart in the land environ. A word for a civet in Bengali and Odia is *bhāma*, which is a semantic specialization of the Sanskrit word *bhāma*, “hot, angry, incensed.” Presumably this word evokes the strident, squealy, agitated tone of the call of certain civets (e.g., *Paradoxurus hermaphroditus*). This “bickering” sound is probably therefore also associated with another vernacular meaning of *bhāma*: “an angry/shrewish woman,”¹⁷² a *bhāminī*. The moniker “angry call” could be expressed in Sanskrit as **bhāmbhā*, but the conjecture with clearest support in



Figure 15: Clouded leopard

¹⁷⁰ Dave 1985: 138–139.

¹⁷¹ See e.g., *Abhidhānaviśvalocanā* 1994: *mataḥ śālīḥ pumān gandhamārjare* (ed. Jamsal and

Wayman 1992: 339).

¹⁷² See also Praharaj 1931–40: 6081, *Bhāma*, *Bhāmā*, *Bhāminī*.

present-day vernaculars would be simply *bhāmā*.¹⁷³ However, this word is not known to have denoted civets in the period of interest.

On the other hand, a conservative emendation to *bhāmbhā*, in connection with the Sanskrit word for a fly or bee (*bhambha*), assumes only one miscopied grapheme and would explain the uncommon *mbhā* orthography, which is reproduced throughout the Tibetan and Nepalese textual tradition. A technicality might allow a *bhambha*-like insect to be placed in the land environ. According to Suśruta, one of the kinds of organism that grows out of the ground is the arthropod called *indragopa*.¹⁷⁴ Some modern dictionaries identify this insect as a firefly, but it has now been convincingly identified as the red velvet mite (genus *Trombidium*).¹⁷⁵ In the view of Siegfried Lienhard, the *gopa* name element should mean “keeps to (literally, protects) the ground,”¹⁷⁶ as these mites crawl about in rainy weather (*indra*). The bright vermilion color of these mites is sometimes compared to fire, so the potential confusion with fireflies¹⁷⁷ could have gone back to the premodern era. But the conjecture **bhāmbhā* is not a known synonym for the geogenous *indragopa*. The rock bee (*Apis dorsata*), which is known for nesting on rock ledges (i.e., on land), is called *bhambha* or *bhambharālī*, but all the fauna names in this verse refer to mammals.

Domesticated and Horned Sheep (Bheḍī and Eḍakī)

The words *eḍaka* and *bheḍa* can both mean a ram (which is not applicable as the name of a goddess), a sheep or a goat.¹⁷⁸ As the modern dictionary definitions of the two words have similar semantic scope, it is not clear how they would designate two categorically different kinds of animal. They may, for instance, refer to domesticated and undomesticated sheep, or to two different breeds of sheep. Suśruta distinguishes between regular and fat-tailed sheep;¹⁷⁹ Hamsadeva states that some female *eḍakas* “may not have horns.”¹⁸⁰ Conversely, then, other *eḍaka* breeds may have horns, and this feature would visually differentiate *eḍakas* from *bheḍa* ewes.¹⁸¹ One emic lexicon states specifically that

¹⁷³ Some Tibetan printings attest to an initial *bha*- (e.g., Qianlong No. 19, 40a₈: *bha mbhi*; Phugbrag, No. 445, 60a₁: *bha shha*, sic), but these readings probably involve errors in the transmission of the Tibetan translation.

¹⁷⁴ *Śuśrutasaṃhitā* 1.1.30 (ed. Āchārya 1945: 5 ...*indragopamaṇḍūkaprabhṛtaya ud-bhijjāḥ*). On the various modes of generation, see Zimmermann 1987: 200.

¹⁷⁵ Lienhard 1978: 187, and, independently, Zimmermann 1987: 244 n. 8. The “firefly” interpretation is given by Monier-Williams and Turner.

¹⁷⁶ Lienhard 1978: 187.

¹⁷⁷ As Lienhard (1978: 187) points out, the word *gopālikā* refers to the horsefly, while synonyms for *indragopa* such as *tāmrakṛmi* (“red bug”) and *agnika* (“fiery”) could be mistakenly taken to mean a firefly. The firefly itself is clearly designated by the names *khadyota*, *jyotirbīja*, etc.

¹⁷⁸ Turner 1966: 121, 548, Nos. 2511, 9606.

¹⁷⁹ Zimmermann 1987: 227, *urabhra* and *medaḥpucchaka*.

¹⁸⁰ Sundaracharya 1927: 48.

¹⁸¹ For some depictions of horned sheep in classical Indian art, see van der Geer 2008, figs. 401, 405.

eḍakas are horned sheep.¹⁸² The blue sheep or bharal (*Pseudois nayaur*) is an example of a native species with horned females, unlike domesticated sheep (*Ovis aries*), which are called *bherā* in Bengali.

Muntjac (*Mūñjakī*)

The English name for the muntjac deer is cognate with the word *mūñjaka*, “of moonj grass,” being derived from Dutch via Sundanese *mencek*,¹⁸³ according to the OED. The range of the red muntjac (*Muntiacus vaginalis*) extends across Southeast Asia and eastern India. There are references to muntjacs in classical Indian culture.¹⁸⁴ *Mūñjakī*, *Mr̥gī* and *Citriṇī* are three counterparts of the deer goddess Hariṇī in the *Laghutantraṭīkā* tradition.

Wild Dog (*Araṇī*)

Two kinds of animal “of the wilds” (Sanskrit *āraṇyī*) are recognized in the *Laghutantraṭīkā*: the female wild dog (*araṇyaśvānī*) and the wild ‘lioness’ (*araṇyasimhīnī*). The latter probably refers to the jungle cat (*Felis chaus*). In the *Ḍākārṇava*, the name *Araṇī* is followed by another type of *śvāna*, indicating that the “forestlander” is a kind of dog. The parallel zoonym in the *Kālacakratāntra* is likewise the “female wild dog,” *āraṇyaśvā*.¹⁸⁵ The word *āraṇya* is attested with the same meaning elsewhere in the Sanskrit corpus.¹⁸⁶ This animal is otherwise known as the dhole (*Cuon alpinus*, Figure 16), the Asiatic wild dog, Indian wild dog and so on. Many of the dhole’s local names are cognates of Sanskrit *kukkura*, although the Odia word *banaśvā*, “forest dog,” is conceptually related. The manuscript reading *araṇī*, which would be a misnomer in a properly Sanskrit text (literally, a strange” beast), can be accepted because it is phonetically close to attested vernacular names for wild animals such as *arṇā* or *arnī*.¹⁸⁷

Mastiff (*Bṛhaśhvānikā*)

This is an informal name for a kind of dog that would be differentiated by its size from a wild dog and a village dog—that is, a guard dog, watchdog or sheepdog. The Bully Kutta, for instance, is a large breed that was valued across India for hunting and guarding. Depictions of mastiffs proper have been identified in Indus Valley seals and other early Indian art.¹⁸⁸ The manuscript reading *bṛhaśhvānikā* is unmetrical and plainly irregular, especially if one accepts the name *Bṛhatkā*

182 *Rājanighaṇṭu* 19.46 (ed. Bhaṭṭācāryya et al. 1933?: 458): *eḍakaḥ śṛṅgiṇo ’viḥ syād*.

183 Rigg 1862: 282, *mīnchēk*.

184 van der Geer 2008: 316. Zimmermann (1987: 225) proposes that the moniker *śvadaṁṣṭrā* refers to the muntjac.

185 *Kālacakratāntra* 3.149d, ed. Dwivedi and

Bahulkar 1994: 120.

186 Bollée 2006: 16.

187 Turner 1966: 27, Nos. 598, 599, *āraṇa*, *arāṇi*; compare No. 600, *āraṇya*.

188 Bollée 2006: 7–8; van der Geer 2008: 160, 164–166.

in the wind environ. If it is retained to expose some underlying issue in the text, it could be conjectured that the original reading is, for instance, **ṛddhaśvānikā* or **grhaśvānikā*, but in the latter case, the dog of the domestic environment, the pye-dog, features elsewhere in this series as Grāmanivāsinī.

Large-Billed Crow (Dronakākī)

The *dronakāka*, to translate its name literally, is a “carrion crow.” But the carrion crow proper (*Corvus corone*), as it is known in English, only occurs in India in the northwestern fringe of Kashmir.¹⁸⁹ The word *dronakāka* and its cognates (e.g., Bengali *dāmṛkāk*) in fact designate the large-billed crow (*Corvus macrorhynchos*), which is found throughout the subcontinent.¹⁹⁰ The large-billed crow is also a possible referent of Bṛhatkākī in the wind environ. As this bird is large enough to feed and subsist on carcasses, unlike the house crow, it can be loosely classified as having a terrestrial habitat.

Spotted Deer or Cheetal (Citriṇī)

Macrofauna names that include the word *citra* (or its cognates) often refer to leopards,¹⁹¹ but the leopard is mentioned elsewhere in this series. Another candidate for identification with the *citriṇī* could be the fishing cat (*Prionailurus viverrinus*), which has spotted fur, and is the state animal of West Bengal. However, its modern names refer to its ability to fish: Bengali *maccho bagh*, Hindi *machvārī billī* and so on. A case can instead be made for identifying Citriṇī with the chital or cheetal, the spotted deer (*Axis axis*). Its cognate names include Hindi *cītal*, Bengali *citrā harīṇ* and Odia *citrāṅga* or *citramṛga*. Cheetals are a common sight in classical Indian art and iconography.¹⁹² So there are solid grounds for identifying Citriṇī as a cheetal, although more definite support from the Sanskrit corpus would be desirable. If *citra* is taken in the same sense that may be intended in the air environ, i.e., as pied or bicolored, this goddess could instead be identified with the *eṇa* or blackbuck (*Antilope cervicapra*).

Camel (Kuṭikā)

The animal that is “crooked” or “curved” has been soundly identified by Sugiki as a camel on the basis of the Tibetan translation *rnga mo*. However, the word *kuṭika* is not found in standard Sanskrit dictionaries as a name for a camel. Most Indian vernacular names for the camel are derivatives of Sanskrit *uṣṭra*, and the hump of the camel is denoted by the word *kubja* and its cognates: Bengali *kūṁj*, Hindi *kūbaṛ*. It should also be noted that the reading *kuṭikā* is unmetrical in the verse in question. For metrical compliance, a semi-vernacular form such as

¹⁸⁹ Madge 2020.

¹⁹⁰ Madge et al. 2024.

¹⁹¹ Turner 1966: 261 No. 4804.

¹⁹² van der Geer 2008: 67–72.

ūṭi(kī) could be conjectured, following Ratnasena,¹⁹³ or perhaps **kūṭakā*. In any case, the Odia word *kudiā*, presumably cognate with Sanskrit *kuṭikā* or *kuṭilā*, is recorded as meaning either a camel or a place with mounds.¹⁹⁴

Monitor (*Guhī*)

The name of this goddess is recorded as *guhā* in the Sanskrit manuscripts. This word, associated with the root $\sqrt{\text{guh}}$ “to cover, hide,” can mean a horse. The Tibetan translators, however, rendered it as *phug ma mo*, “cave female,” as a horse, Turagī, *rta mo*, already features in the same series. Certain animals are classified as having lairs (*guhāśāya*) in the taxonomy of Suśruta, but most of them occur elsewhere in this series.¹⁹⁵ Comparison with the fauna assemblage of the *Laghutantraṭīkā* shows that this goddess should correspond to Godhī, “Monitor Lizard,”¹⁹⁶ who has no other counterpart in the *Ḍākārṇava*’s land environ. The goddess’s name should then be understood as a vernacular form of *godhī* and emended to *guhī*, the reading given in manuscript variants and in Jayasena’s ritual manual.¹⁹⁷ This emendation aligns with contemporary vernacular spellings;¹⁹⁸ the monitor lizard is called *gui śāp* in Bengali and Assamese. The word *guha/guhī* may secondarily allude to the scaly, “covered” skin of a monitor. A common species in the region of interest is the Bengal monitor lizard (*Varanus bengalensis*).¹⁹⁹

“Village Dog” (*Grāmanivāsini*)

“Village dweller” is a nonspecific name. Most of the animals domesticated in antiquity, the *grāmya* species,²⁰⁰ already occur elsewhere in the land environ. Monier-Williams’ dictionary, citing Manu, states that *grāmanivāsī* fauna are birds,²⁰¹ but birds are assigned to the wind environ in this system. *Grāmanivāsini* should be identified with the stray, dingo-like village dog or South Asian pariah dog (Figure 17), which is called *grāmya* in Bengali, *desī kuttā* in Hindi, and *grāmyasīṃha* in Odia. It is identified by conceptually similar Sanskrit terms: *grāmina*, *grāmamṛga* and so on.²⁰²

193 D1516 (28b): *bazra ū ṭi kī ye*; cf. Turner 1966: No. 2387, *ūṣṭra* (Bengali *uṭ*, Odia *uṭa*, oṭa, Hindi *ūṃṭ*); but note that the glyphs for *ū* and *ku* are confusable.

194 Praharaj 1931–40: 1654.

195 Zimmermann 1987: 51, Fig. 5. The wolf and hyena, which are not present in the land environ, have no counterpart among the *Laghutantraṭīkā* fauna either.

196 Monitor lizards are still formally called *godhi* in parts of Odisha (Dutta et al. 2009: 94–97).

197 Sugiki 2022: 513, witnesses C, J

(Jayasena).

198 Turner 1966: 230 No. 4286 lists Odia *gohi*, *goi*, *gui*, Maithili *gohi* and so on as cognates. Praharaj (1931–40) gives *gudhi* as a cognate of *godhi* and *gui* and *gue* as a name for an “iguana.” See also Alam, Sarowar, Chowdhury, et al. 2012: 158.

199 Alam, Sarowar, Chowdhury, et al. 2012: 158.

200 On animals classified as *grāmya*, see Zimmermann 1987: 51, 227.

201 Dave 1985: 258.



Figure 16: The “wild dog” or dhole.



Figure 17: Stray or pye-dog.

THE WATER ENVIRON (ḌĀKĀRṆAVA 15.167–170AB)

मकरी^१ कूर्ममच्छा^{२,३} तु विङ्गी^४ कच्छपी^५ ओड्रिका^६ ।
 सूची^७ गग्गरी^८ शिली^९ च जलगुही^{१०} कीटीमुखा^{११} ॥ १६७
 फडिङ्गी^{१२} कर्कटी^{१३} सूषी^{१४} मूषिका^{१५} पिप्पडीमुखा^{१६} ।
 जलनारी^{१७} वडवी^{१८} च दन्तिनी^{१९} व्याघ्रजम्बुकी^{२०,२१} ॥ १६८
 जलाही^{२२} शङ्खा^{२३} कपर्दी^{२४} मुक्तिकी^{२५} मणिजिङ्गुरी^{२६,२७} ।
 लीसी^{२८} दुर्दुरी^{२९} कर्णाटी^{३०} फाटकी^{३१} दावकी^{३२} कृमी^{३३} ॥ १६९
 † जुषुजुषी†^{३४} दंशकी^{३५} कला^{३६} देवतानायकी वरी ।

^a गग्गरी शिली ॥ em. (unmetrical); MS, ed.: गग्गरी मीली

^b जलगुही ॥ em.; MS, ed.: जलगुहा

^c फडिङ्गी ॥ ed. em.; MS: फटिङ्गी

^d सूषी ॥ em.; MS: सू(?) यी; ed.: सूयी

^e मूषिका ॥ ed. em.; MS: म षि का

^f पिप्पडीमुखा ॥ corr.; MS, ed.: पिप्पटीमुखा

^g वडवी ॥ ed. em.; MS: व ट वी

^h दुर्दुरी ॥ corr.; MS, ed.: दुर्दुरी

ⁱ कृमी ॥ ed. em.; MS: कृ मा

^j जुषुजुषी† दंशकी ॥ MS; conj.: जूका = दंशकी; ed.: juṣujuṣīdaṁśakī

Water monster, Turtle, Fish, Toad, Tortoise, Otter,

202 Village dogs are called *śvāna*, *sārameyā* and *grāmamṛga* by Haṃsadeva

(Sundaracharya 1927:73–76). See Bollée 2006: 15 for further discussion.

Mosquito, Gogora Catfish, Silond Catfish(?), Water Monitor, Insect-Face,
 Dragonfly, Crab, River Dolphin, Rat, Ant-Face,
 Mermaid, Mare, "Tusker," Tiger, Jackal,
 Water Snake, Conch, Cowrie, Nacreous [Mollusc], Pearl [Oyster],
 Prawn,
 Ilisha, Wetlands Frog, Carnatic Carp(?), "Crystal Shell," Mudskipper(?), Worm,
 Louse, Botfly and Moon Unit are the select goddess leader.

Toad (*Viṅgī*)

The manuscript reading *viṅgī* is a semi-vernacularized form of Sanskrit *vyāṅga*, a word applied to both frogs and toads. Cognate words in Indian vernaculars include Bengali *beṅ*, Odia *beṅga*, Assamese *beṅ* and so on. The question here is which kinds of amphibian have a characteristically "bumpy/blemished body" (*vi-aṅga*). Some species with *vyāṅga* appearance include the common toad (*Duttaphrynus melanostictus*) or marbled toad (*Bufo stomaticus*), both of which are found in Bengal and live near water,²⁰³ as opposed to tree frogs, grass frogs and so on. In Hindi, frogs are often designated with words cognate with Sanskrit *maṇḍūka* (see also Durdurī in this series).

Mosquito, "Needler" (*Sūcī*)

Many waterborne organisms have a "needle" or sting. Sugiki understands *Sūcī* to be a scorpion on the basis of the (probably speculative) Tibetan translation *sdig nag*, but *sūcī* is not a name associated with scorpions, and scorpions are not associated with moist habitats. This fauna name is, rather, one of a series drawn from classical taxonomy. Manu nominates the botfly (see *Daṃśakī*, thirty-fifth in this environ) and the mosquito (*maśaka*)²⁰⁴ as typical moisture-borns.²⁰⁵ In this context, *Sūcī* is, and is an attested synonym of, a mosquito.²⁰⁶ *Suśruta*, likewise, refers to a category of mosquito that is associated with large water bodies.²⁰⁷ The scope of the name *sūcī* is of course broad enough to include other stinging insects that breed in water. For instance, sandflies of the genus *Phlebotomus*, which flourish in the northeast of India, feed on blood through a proboscis. However, varieties of aquatic mosquito, such as the marsh mosquito (genus *Anopheles*), are widespread enough that they can be considered the main referent of the name *Sūcī*.

²⁰³ Alam, Sarowar, Chowdhury, et al. 2012: 170–171.

²⁰⁴ The word *maśaka* primarily refers to mosquitoes (Turner 1966: 570 No. 9917).

²⁰⁵ *Mānavadharmasāstra* 1.45a (ed. Jolly 1887: 5): *svedajam daṃśamaśakam*.

²⁰⁶ *Rājanighaṇṭu* 19.177ab (ed. Bhaṭṭācāryya et al. 1933?: 478): *maśako vajratuṇḍaś ca sūcyāsyah* [...].

²⁰⁷ *Suśrutasaṃhitā* 5.8.36 (ed. Āchāryya 1945: 730): *maśakālī sāmudraḥ* [...].

Gagora Catfish (*Gaggari*)

Outside Southeast Asia, this catfish species (*Arius gagora*) is found only in the coastal waters of eastern India. In the *Suśrutasaṃhitā*, the *gargara* is a typical marine fish (*sāmudra*).²⁰⁸ The Bengali names *gāglā* and *gāgrā* are cognate words; *gargara* is still current in Odia.

Silond Catfish (*Śilī*)

This is an obscure name in an aquafaunal context. Whereas the manuscript reading *mīlī* gives no clear sense, the Tibetan translators transliterated *shī li ma*, which indicates that the former reading is a corruption of the latter (*śīlī* → *sīlī* → *mīlī*).²⁰⁹ The long initial vowel attested in the witnesses seems to be lengthened for the meter, and is not necessarily integral to the goddess's name.²¹⁰ The presumed Sanskrit form of this name, as read by Jayasena,²¹¹ is *Śilī*. The lexeme *śilī* means "dart, spear" and is etymologically linked to the word *śalya*, "thorn."²¹² The *Amarakośa*'s list of aquatic fauna includes *śilī* as a synonym of *gaṇḍūpadī*, an earthworm (*kiñcūluka*).²¹³ Sugiki accordingly understands *Śilī*'s name to mean a "large snake" or "a kind of worm or frog." But it would be very difficult to identify *śilī* as an earthworm here, as it is explicitly characterized as terrestrial²¹⁴ and is not included in classical taxonomies of the moisture-born. *Śilī* would be a different kind of aquafauna named for its association with a *śalya* —a so-called "barb,"²¹⁵ a "dart" (genus *Trachinotus*), a knifefish or the like.

A fish species that is persistently associated in its vernacular names with the etymon *śilī* or its cognates is the silond catfish (*Silonia silondia*). It is called *silona*, *śilaṃ mācch* or *jilām* in Bengali and *śilinda* in Odia. What the silond catfish might have to do with a "dart" has not been clarified etymologically. The word *śilī* probably refers to the barbels around the mouth of a catfish. Although the silond catfish does not itself have barbels, *śilī* may have metonymically denoted catfish in general, just as "barbel" means a catfish in English. The silond catfish is in fact designated by the cognate words *śalya* or *salyaka* in Odia.²¹⁶ This species is

208 *Suśrutasaṃhitā* 1.46.118 (ed. Āchārya 1945: 218); Turner 1966: 216 No. 4044.

209 Sugiki 2022: 60, 104 n. 569.

210 The verse is still unmetrical. To form a *na-vīpulā* in 15.167c we could read *sucī gargara-sīlī*. A conventional Prakrit cognate of *śilī* would be *silli* (Turner 1966: No. 12466).

211 Sugiki 2022: 60 n. 202, 148 n. 907.

212 Turner 1966: No. 12466.

213 *Amarakośa* (*vārivarga*) 36a, 38c (ed. Vidyābhūṣaṇa 1911: 66).

214 The Tibetan *Amarakośa* (D4299, ed. Vidyābhūṣaṇa 1911: 66), for instance, translates *śilī* as *sa 'bu phra mo*. Other Sanskrit lexicons give synonyms such as *bhūlatā*, "earth-creeper," and so on.

215 The name of one barb-type fish, the mahseer carp (*Tor tor*, also genera *Neolissochilus* et al) could be connected to the etymon *śalya*, but Sadhale and Nene (2005) discuss its presumed Sanskrit name *mahāśīla* in connection with the etymon *śīla*, "rock."

216 Praharaj 1931–40: 7598.

discussed in Ayurvedic lexicons under the name *śilindha*,²¹⁷ and has long been observed to be commercially important. It should be added that the word *śilā* in the different sense of “rock” is applied to various kinds of “rock fish” or reef fish in Odia and Tamil,²¹⁸ but this is an unrelated and most likely modern turn of phrase.

The counterpart of Śilī in the *Laghutantraṭīkā* tradition may be a goddess with the etymologically related name Śallakī (34), the “Quill-haver,” usually identified as the porcupine (*Hystrix indica*).²¹⁹ The next goddess in the *Laghutantraṭīkā* tradition, Iṣukī (35), has not been identified.²²⁰ Her name, “Arrow-haver,” is itself suggestive of a porcupine, but perhaps better fits the pangolin (*Manis crassicaudata*), insofar as its rhombic scales can be likened to arrowheads. The pangolin has also been called by the name *śalyaka*,²²¹ and has been recognized as the porcupine’s “complementary opposite” in classical texts.²²²

Water Monitor (*Jalaguhī*)

If the manuscript reading *jalaguhā* is accepted and taken to mean “water horse,” it would then seem to refer to a mythical beast, a hippocampus or *jalaturaga*, as depicted in classical South Asian art. However, the few depictions of the hippocampus in India are now regarded as artefacts of Indo-Roman contacts²²³ and not as instances of a widespread classical motif. It is also doubtful that a *jalaguhā* could be identifiable as, for instance, an obscure creature such as a seahorse, for which few genuinely native names—especially premodern names—have been recorded. It is speculated that *jalaturaga* is a Sanskrit name for the tapir, but tapirs do not occur on the Indian subcontinent in the present day.²²⁴ If *guhā* is again taken in the aforementioned sense of a creature with a “hiding place,” the list of aquatic life forms that take refuge in dens, burrows and so on would be too long to narrow down; in this series alone, there is the turtle, the otter, the catfish and so on.

It is instead understood that *Jalaguhī* is a semi-vernacular name of the water monitor (*Varanus salvator*) or of other kinds of monitor lizard that live near water

²¹⁷ *Dravyaguṇasaṃgraha (māṃsavarga)* 2.42 (ed. Āchārya 1905: 29).

²¹⁸ Praharaj 1931–40: 7695, 7697, 8524. In present-day Odisha, *śilā māch* are croakers such as the karut croaker (*Johnius carutta*); see Roul et al. 2022: 9. Fish called *cīlā* in Tamil include the barracuda and rock cod. The stonefishes of the Indo-Pacific (genus *Synanceia*) do not range into the Bay of Bengal region.

²¹⁹ Turner 1966: 716 No. 12353 (also: 12339, 12348).

²²⁰ In the *Kulikā* this name is translated

mdzes ta kri mo, which at present remains opaque—*mdzes sta gri mo?* *mdzes ta shi mo* (Persian *taši*)?

²²¹ Praharaj 1931–40: 7599, *Śalya paśu* (compare *Kālacakrapāda’s *i shu ka pa shu*); Turner 1966: 716 No. 12353, *śālyaka* (“armadillo”); Zimmermann 1987: 174.

²²² Jákl 2019: 78–83.

²²³ Dalal et al. 2017–18: 74–77.

²²⁴ Johnson 1937: 355. However, according to van der Geer (2008: 415–416), tapirs were depicted at Bharhut and are now extirpated from the subcontinent.

and swim.²²⁵ The manuscript reading has, accordingly, been emended to *jalaguhī* for clarity.²²⁶ This goddess is then a conceptual analogue of Kumbhīrī, “Estuarine Crocodile” (*Crocodylus porosus*²²⁷), in the *Laghutantraṭīkā* fauna assemblage, while her name is cognate with that of the goddess Godhī.

Insect (Kīṭī) and Ant (Pippaḍī)

The words *kīṭīmukhā* and *pippaḍīmukhā* are translated as “some ‘worm-face’ creature” and “some ‘ant-face’ creature,” respectively, by Sugiki. It is doubtful, however, that some kind of aquatic life was known specifically for having an insect-like face. For instance, marine arthropods with antennae, such as lobsters, are often related to the prawn, crab and so on in their Indian vernacular names.²²⁸ *Kīṭīmukhā* and *Pippaḍīmukhā* are not the names of marine fauna with insectoid faces, but of goddesses who have the heads of organisms with moist habitats. Zoocephalic deities in tantric Buddhism go back to the *Sarvabuddhasamāyoga*’s goddesses *Vaḍavāmukhā* (instantiated in the water environ as *Vaḍavī*) and, of course, *Vajravārāhī* alias *Vajramukhī*.

The *Ḍākārṇava* is again referencing a classical taxonomy with the names *Kīṭīmukhā* and *Pippaḍīmukhā*: “the moisture-borns beginning with the worm, insect and ant.”²²⁹ All three moisture-borns occur with the same names in the *Ḍākārṇava*’s water environ, and the category of moisture-borns is referred to explicitly in the fifteenth chapter.²³⁰ A typology of three moisture-borns akin to *Suśruta*’s is, furthermore, accepted in the *Vimalaprabhā*.²³¹ In short, *kīṭī* and *pippaḍī* are two kinds of fauna stereotypically said to be born in moist habitats, and *Kīṭīmukhā* and *Pippaḍīmukhā* are their “Insect-faced” and “Ant-faced” goddess manifestations. The water *yoginī*s are said to have the faces and, optionally, the bodies corresponding to their names.²³² The postfixed *mukhā* element fills out the meter, and there are similar incidences of this wording in same chapter;²³³ it is superfluous, according to Ratnasena, who drops this name

²²⁵ Halder and Director, Zoological Survey of India 1995: 409–411; Dutta et al. 2009: 94–96.

²²⁶ The cognates listed by Turner (1966: No. 4286) for *godhā* in the sense of “iguana, a kind of water-animal” end in long or short *i*, with the exception of Prakrit *gōhiā*.

²²⁷ Bengali *kumbhīra*, *kumira*; Odia *kimbhīra*, *kumbhī*, etc. (Praharaj 1931–40: 1592, 1674).

²²⁸ Habib et al. 2017: 291.

²²⁹ *Suśrutasaṃhita* I.1.30: ...*kṛmikīṭapipīlikā-prabhṛtayaḥ svedajāḥ*... (ed. Āchārya 1945: 5).

²³⁰ *Ḍākārṇava* 15.131b, 174c (ed. Sugiki 2022: 97, 105).

²³¹ *Vimalaprabhā* on *Kālacakratāntra* 1.4c: ...*samsvedajāḥ kīṭapataṅgakṛmyādayo jalayoniḥ*...; ed. Upadhyaya 1986: 55.

²³² *Ḍākārṇava* 15.171ab: *mukhaṃ ca svas-varūpāṇi yoginīnāṃ yathākramāt* (ed. Sugiki 2022: 105). This is indeed noted by Sugiki (2022: 148 n. 910).

²³³ For instance, the name Śvānāsyā is called Śvānavaktrikā for metrical compliance in *Ḍākārṇava* 15.96b (ed. Sugiki 2022: 91).

element in his ritual manual.²³⁴ The word *pippaḍī* is an attested Prakrit name for an ant and does not need to be Sanskritized in this context.²³⁵

Dragonfly (*Phaḍiṅgī*)

Phaḍiṅgī is not a “cricket,” which is not an aquatic species, but a winged insect with a freshwater habitat, such as a dragonfly (Bengali *phaṛiṅ*). The scope of this zoonym also encompasses damselflies, skimmers and striders.²³⁶ The emendation of the manuscript reading *phaṭiṅgī* to *phaḍiṅgī* is justified by the scribe’s occasional alternation between *ḍ* and *ṭ* and the parallels in modern vernaculars, although cognate names beginning with *pat-* or *phaṭ-* are attested in other contexts.²³⁷

River Dolphin (*Sūṣī*)

The manuscript reading *sūyī* results from confusion between the glyphs *y-* য and *ṣ-* ষ in a proto-Bengali script. This conjecture has support from the Derge printing of the Tibetan translation, which conveys the goddess’s name as *su sa mo*.²³⁸ Names akin to *sūṣī* in eastern Indian vernaculars refer to the Ganges river dolphin (*Platanista gangetica*): Hindi *sūṃsa*, Bengali *śuśu* or *śuśuk*, Odia *śiśuka*, Assamese *śiśu*.²³⁹ These names go back to the Sanskrit word *śiśumāra*, “child murderer,” which originates in Vedic and Pauranic discourse²⁴⁰ and therefore presumably at first designated the Indus river dolphin (*Platanista minor*). A change from *śuśu* to *suśu/sūṣī* would be paralleled by the shift from Sanskrit *śaśī* (“hare”) to Apabhraṃsa *saṣī* that is attested elsewhere in the *Ḍākārṇava*.²⁴¹ The goddess’s name is then emended to *Sūṣī*, the female river dolphin.

Rat (*Mūṣikā*)

The cognate English word “mouse” is not a suitable translation here, as mice are not associated with aquatic habitats. It is clear from the *Suśrutasaṃhitā*’s chapter on ailments transmitted by *mūṣikās* that most of the described animals are rats; for instance, they are a vector for rabid hydrophobia (*unmattena... jalatrāsam*).²⁴²

²³⁴ Sugiki 2022: 104, n. 569, 570, siglum R.

²³⁵ Sugiki (2022: 104 n. 570) proposes to read *pippīlamukhā* for *pippaṭimukhā*. However, *pippaḍā* is a known Prakrit cognate Turner 1966: 463 No. 8201.

²³⁶ For examples in Bangladesh see Habib et al. 2017: 284.

²³⁷ Turner 1966: 435, 463 No. 7721, *pataṅgā*.

²³⁸ D372 fol. 175a(349)₄; other printings: *su ya mo*; cf. Sugiki 2022: 176 n. 1085. It is doubtful, however, that the two variants result from different readings of the trans-

lators’ exemplar; confusion of *ya* and *sa* in *dbu med* script would be more likely.

²³⁹ Turner 1966: 719–720 No. 12426; Habib et al. 2017: 310.

²⁴⁰ There is a confusion with the name of the man-eating crocodile (*śiśumārī*); see Acharya 2020: 9 n. 27.

²⁴¹ Chaudhuri 1935: 7, 9. The spelling of the name Hare goddess Śaṣī (Land environ, 4) exemplifies what is called “semi-vernacular” in this study.

²⁴² *Suśrutasaṃhitā* 5.7.45a, 49a.

Bandicoot rats (*Bandicota indica*) often live close to bodies of water in northeastern India.²⁴³

Jackal (Jambukī)

As the jackal already features in the land environ, a name more germane to aquatic fauna would be expected here. For instance, the words *śambūka*, “shell mollusc,” and *jalūka*, “leech,” are confusable with *jambuka*. Nevertheless, the golden jackal (*Canis aureus*) is known to inhabit marshes and wetlands in Bangladesh.²⁴⁴

Cowrie (Kapardī)

The identification of Kapardī as a cowrie (*Monetaria moneta*) is straightforward, but there is a problem with the corresponding name in the Kālacakra system: *ākhu* (Kālacakra 3.149b, number 12). The *Vimalaprabhā* commentary, according to one of its textual traditions, glosses the name *ākhu* as *kapardikā*, “cowrie.”²⁴⁵ However, this is not a known meaning of *ākhu* or an obvious semantic extension.²⁴⁶ The Sanskrit word *ākhu* refers to animals that dig—originally, the mole,²⁴⁷ and more usually, the rat. The name *ākhu* occurs again, in this latter sense (i.e., meaning a rat), in the same fauna assemblage (Kālacakra 3.150a, number 30).²⁴⁸ The first occurrence of *ākhu* is then clearly anomalous. It could be emended to some Indic word for a cowrie, but most of the attested synonyms or cognates are not a good metrical fit.²⁴⁹ This discrepancy does not need to be resolved here, as it has no direct bearing on the identification of the *Ḍākārṇava*’s fauna names, but it does show that the Kālacakra system is unlikely to have been the *Ḍākārṇava*’s source in this case.

²⁴³ Alam, Sarowar, Chowdhury, et al. 2012: 66, 195.

²⁴⁴ Alam, Sarowar, Chowdhury, et al. 2012: 65.

²⁴⁵ *Vimalaprabhā* on Kālacakra 3.149b (Lokesh Chandra 2010: 73 fol. 44r₂): *kaparddikā vaiṣṇavī*, “the cowrie is [the goddess] Vaiṣṇavī.” Here the edition of Dwivedi and Bahulkar 1994: 120 instead reads *ākhuḥ* (*sic*) *vaiṣṇavī*.

²⁴⁶ Cognates of the etymon *kṣudrā* (Turner 1966: 193 No. 3712), *khudro* and so on, have the sense of “small money,” which could apply to cowries, but a contraction such as **khuḥ* is not known to be attested.

²⁴⁷ Katz 2002: 296–297.

²⁴⁸ *Vimalaprabhā* on Kālacakra 3.150a, *godhākhuh*, comments: *tathā godhā kākāsya | mūṣakaḥ śūkarāsya*, “Then, the monitor lizard is Kākāsya; the rat is Śūkarāsya” (ed. Dwivedi and Bahulkar 1994: 121).

²⁴⁹ Words for cowries such as *varāṭaka*, *hiranya* or *cūrṇī* do not fit here, nor do Bengali *kaṛa* or *kaṛī* (cf. Turner 1966: No. 2740), Odia *kaiṛī*, Tamil *kauri*, etc. Was the Sanskrit word for “one,” *ku*, a synonym for a cowrie (as a unit of exchange)? *Ku* is a counter for shell money in Old Javanese (Zoetmulder and Robson 1982: vol 1, 928, *kupaṇ*).

Nacreous Mollusc (Muktikī) and Pearl Oyster (Maṇī)

The names Muktikī and Maṇī are translated by Sugiki as “pearl” and “another kind of pearl.” In the present context, the two names should refer to two visibly different marine organisms. There are two main species of pearl oyster; only one (*Pinctada margaritifera*) is found in South Asian waters. The word *muktika* or *mauktika* is adjectival: “pearled, pearlescent.” It is applicable to the nacre-lined shell of the pearly or chambered nautilus (*Nautilus pompilius*, Figure 18). The nautilus’s present-day range extends eastward from the Pacific no further than the Andaman Islands, but its shell has long circulated more widely as an Indian Ocean trade commodity.²⁵⁰



Figure 18: Polished pearly nautilus shell from the Pacific Ocean

There are other mollusc species with nacre-lined shells in the Andamans, such as top shells (genus *Trochus*), mussels and different kinds of oyster (e.g., *Pteria penguin*).

Prawn (Jiṅgurī)

Jiṅgurī is a name cognate with words for a prawn or shrimp: Sanskrit *ciṅgaṭa*, Prakrit *jhiṅgā*, Bengali *ciṅṛi*, Odia *chiṅgurḍi* and so on.²⁵¹ The common name of *Metapenaeus affinis* is the jinga shrimp.²⁵²

Ilisha ([I-]Līśī)

There is no entry for *līśī* in Sanskrit dictionaries, and the Tibetan translators were also perplexed by this name, transliterating it as *li sa mo*. This name is proposed here to refer to the ilisha (*Tenualosa ilisha*), the national fish of Bangladesh. The ilisha is called *iliś*, *ilīśa* or *ilīśā* in Bengali, *iliśī* in Odia, and *hilsā* in Hindi.²⁵³ Most of these names have an initial *i-*, whereas the *Ḍākārṇava*’s witnesses all have readings consistent with the lemma *līśī*. The word *illiśa* does belong to the period of interest, since it is attested in the *Trikāṇḍaśeṣa* of the Bengali grammarian Puruṣo-

²⁵⁰ Susanto 2023: 498.

²⁵¹ Turner 1966: 260, 297, Nos. 4786, 5385.

²⁵² Habib et al. 2017: 267.

²⁵³ Turner 1966: 72 No. 1594. Turner in-

stead identifies this fish as *Clupea alosa*, i.e. *Alosa alosa*, which is found only in European coastal waters.

tamadeva, whose life is reliably dated to the beginning of the twelfth century.²⁵⁴ If this goddess is identified as an ilisha, her name would be read in euphony with the long *i* at the end of the preceding name—that is, with vowel sandhi extending across the half-verse boundary. In other words, we may read *mañijīṅgurīlīsī*: Mañī, Jīṅgurī, and Ilīsī.

Wetlands Frog (*Durdurī*)

The word *durdura* is an attested alternative form of *dardura*, an onomatopoeic name for a frog.²⁵⁵ The name *Durdurī* is also given in a parallel context in one witness of the *Laghutantraṭīkā*.²⁵⁶ In order to be differentiated from the *vyāṅga*-type amphibian, previously mentioned in this series, this should be an aquatic frog with relatively smooth or unmarked skin. The skittering frog (*Euphlyctis cyanophlyctis*), for instance, lives in and around fresh water bodies, and the Indian green frog (*Euphlyctis hexadactylus*) tolerates saline water.²⁵⁷ According to the *Kulikā*, this taxon should be a “miniature” frog (*rus sbal chung shos ma*), perhaps of the Microhylidae family.

Carnatic Carp (*Karṇāṭī*)

Sugiki proposes that this name can be identified with “some water creature living in Karṇāṭa.” The Carnatic carp (*Hypselobarbus carnaticus*), the state fish of Karnataka, has local names that are cognate with the toponym Karṇāṭa, such as Tamil *keṇṭai* and Malayalam *kāverī keṇṭa*. This carp is only found in the Western Ghats area of South India, like others of the same genus. The name Karṇāṭī could, however, have been applied more broadly. Other fishes of the same genus, *Hypselobarbus*, are reported to be found in Odisha,²⁵⁸ though not in present-day West Bengal or Bangladesh. Similar kinds of cyprinid fish flourish in the coastal rivers of the northeast of the subcontinent;²⁵⁹ the rui (*Labeo rohita*), which is called *rohita* in pharmacopoeias,²⁶⁰ is a much better known example. Although the choice of name for this goddess then seems to be obscure, it resonates with other classifications of females in this system. Karṇāṭakī is a demonym in the *Ḍākārṇava*’s biotaxy of South Asian women.²⁶¹

²⁵⁴ *Trikaṇḍaśeṣa* I.10.11 (ed. Seelakkhndha Maha Thera 1916: 27). On Puruṣottamadeva’s dates, see Vogel 1979: 331–332.

²⁵⁵ See e.g., *Uddhāraśeṣa* 5.64b: *mañḍūkam durduram tathā* (ed. Kak and Shastri 1941: 558).

²⁵⁶ *Laghutantraṭīkā* 5 (ed. Cicuzza 2001: 70, n. 19).

²⁵⁷ Alam, Sarowar, Chowdhury, et al.

2012: 172; Habib et al. 2017: 298.

²⁵⁸ Chanda and Jana 2021: 6.

²⁵⁹ Alam, Sarowar, Badhon, et al. 2015: 100–115.

²⁶⁰ See e.g., *Dravyaśāstra* (*māṃsavarṅga*) 17a, (ed. Āchārya 1905: 43).

²⁶¹ *Ḍākārṇava* 5.3b, No. 4 (ed. Shāstri 1917: 92).



Figure 19: Shell of the windowpane oyster.



Figure 20: Blue-spotted mudskipper.

“Crystal Shell” (*Phāṭakī*)

The word *phāṭaka* is not in common use as an ichthyonym in the Sanskrit corpus. It would be tempting to relate it to Bengali *bheṭki*, the vernacular name for the sea bass or barramundi (*Lates calcarifer*)—“one of the most important fish species of Bangladesh.”²⁶² However, there is no firm linguistic basis for deriving *bheṭki* from Sanskrit *phāṭaka* (“prison gate”).²⁶³ On the other hand, Sugiki’s note that *phāṭakī* is cognate with Sanskrit *sphaṭaka*, “crystal,” and that this name should therefore designate “some small or transparent water creature,”²⁶⁴ is well supported by modern lexicons, although no examples of such a creature are given. Species with bodies that are translucent in water, such as jellyfish (which would be named for its bell or “umbrella,” as in present-day vernaculars²⁶⁵) or obscure taxons such the Indian X-ray fish (*Parambassis ranga*), do not seem to have interested medieval Indian authors.

The name *sphaṭikā* does occur in Sanskrit pharmacopoeias of mineral and biological substances. It is principally a name of alum,²⁶⁶ that is, of sulphate salt crystals (Bengali *sphaṭikāri*, *phāṭaki*); this usage is not relevant here. But the name *sphaṭika* also identifies a type of marine drug, as in the *Suśrutasamhitā*.²⁶⁷ In one list of Ayurvedic marine drugs starting with *sphaṭī*, every identifiable entry is a kind of seashell: “tiny” micromollusc shells, conches, cowries, mother of pearl.²⁶⁸ As the latter three already feature in the water environ in the same order—Śaṅkhā, Kapardī and Mukṭikī/Maṇī—this is clearly a related context. *Phāṭakī* would then be a marine organism with a translucent shell, if not a translucent body and a shell.

²⁶² Habib et al. 2017: 192.

²⁶³ Turner 1966: 509 No. 9069. Conceptu-

Some kinds of shrimp are known for their transparent bodies, such as the glass shrimp (*Leptochela aculeocaudata*). However, shrimp are already represented by Jīngurī in the water environ,²⁶⁹ and shrimp shells, being soft and perishable, do not fall into the same category as durable seashells. For the same reason, the gelatinous pseudoconch of the sea butterfly or sea snail, which is crystalline in appearance, could not be the referent of *phaṭakī*. While further investigation is needed, *Phaṭakī* is proposed to be a name for molluscs that produce a distinctively translucent and shiny shell. One such species in the region of interest²⁷⁰ is the windowpane oyster (*Placuna placenta*, Figure 19),²⁷¹ which has been used as a glass substitute in India.²⁷²

“Forestal,” Mudskipper (*Dāvakī*)

The name of *Dāvakī* is transliterated in the Tibetan *Ḍākārṇava* as *dā ba ka ma*. It phonetically resembles Prakrit *ḍabbara*, “mud, pool, vessel,”²⁷³ and likewise to Hindi *ḍābar*, “marshy ground, puddle.” Words for mudskippers in Bengali include *ḍāhuk*, the blue-spotted mudskipper or goggle-eyed goby (*Boleophthalmus boddarti*, Figure 20), and *hāmṇuni dārāk*, the bearded mudskipper or walking goby (*Scartelaos histophorus*);²⁷⁴ the former word is, however, cognate with Sanskrit *dātyūha*. Alternatively, an etymology derived from the Sanskrit word *dava*, “forest”—in the hypothetical sense of residing in mangrove forests or on mangrove roots—is proposed. Although mudskippers are not important as food fish outside their tidal zone habitats, they may have been deemed special because they are partly terrestrial and air-breathing. The idiosyncratic name *Dāvakī* echoes the name of a caste woman in another environ of the Herukamaṇḍala.

ally, the body shape of the bhetki might be compared to a three-pointed arch turned on its side (a spade shape in modern fish morphology), but lexicographers draw no such connection with the word *phāṭaka*.

264 Sugiki 2022: 148 n. 908.

265 Praharaj 1931–40: 2773, *Chhatraka-dehī*.

266 *Rājanighaṇṭu* 13.117 (ed. Bhaṭṭācāryya et al. 1933?: 377: *sphaṭī ca sphaṭikī proktā śvetā śubhrā ca raṅgadā | raṅgadṛdhā dṛdhar-aṅgā raṅgāṅgā vasusaṃmitā*).

267 *Suśrutasaṃhitā* 6.12.22 (ed. Āchāryya 1945: 767): *sphaṭikam vidrumam śaṅkho madhukam kadhu caiva hi | śaṅkhakṣaudra-sitāyuktaḥ sāmudraḥ phena eva vā*.

268 *Rājanighaṇṭu* 13.4ab (ed. Bhaṭṭācāryya et al. 1933?: 322): *sphaṭī ca kṣullakaḥ śaṅkhau*

kapardaḥ śuktikā dvidhā.

269 One prawn species found in the Chilika Lagoon is called *peṭi* (Praharaj 1931–40: 4981).

270 For instance, *Placuna placenta* grows at Jharkhali in West Bengal (Halder and Director, Zoological Survey of India 1995: 64, 77).

271 Is this the referent of the Kedahan word *padok*, “a shell-fish (unidentified)” (Wilkinson 1901: 443)?

272 Hornell 1909: 47–48.

273 Turner 1966: 310 No. 5530.

274 Habib et al. 2017: 169, 173. MS D in the edition of Sugiki (2022: 104 n. 573) reads with a retroflex initial: *ḍāvakī*.

Louse (Jūyī or Jūkā) or †Juṣujuṣīt

The hypermetrical lemma *juṣujuṣīt* is not a known zoonym, and the Tibetan translators once again resorted to transliterating it. Sugiki proposes that this word may be imitative—denoting “some creature, perhaps sounding ‘juṣu juṣu’”—but gives no inkling of what such a creature might be. The identity of this goddess is indicated by the adjacent taxon, the botfly (*daṃśaka*). The botfly is unusual here in that it is not considered a water-borne organism in modern zoology. The inclusion of the botfly in the water environ shows that the *Ḍākārṇava* continues to draw on the classical taxonomy that classifies botflies as moisture-born (*svedaja*) together with certain other creatures, especially the body louse (*yūka*).²⁷⁵ The louse, which is ectoparasitic, has long been characterized as growing in, literally, “sweat,” in Sanskrit texts,²⁷⁶ although the *Vimalaprabhā*, interestingly, opposes this classification, and counts the louse among ovivaporous creatures.²⁷⁷ As the *Ḍākārṇava* instead appears to be following the earlier taxonomy, the lemma *juṣujuṣīt* can be expected to derive from a word for a louse. The vernacularization of the word *yūka* often involves phonetic change to an initial *jū-* sound.²⁷⁸ The louse is called *jūā* or *jūyā* in Ardhamagadhi, and in Hindi, *jūṃ*.²⁷⁹ The scribe probably miscopied *jūyī* or *jūkā* tu as *juṣujuṣīt* after eyeskipping back to *sūṣīt mūṣikā* in *Ḍākārṇava* 15.168.

Botfly (Daṃśakī)

Cognates of the etymon *daṃśa* are persistently associated with stinging insects in Indian vernaculars, and specifically with botflies (or “gadflies”): Bengali *dāṃś*, Assamese *dāñh*, Odia *daṃśaka*.²⁸⁰ The association between botflies and aquatic habitation is not obvious, as their larvae grow on or in their hosts, not in water. Here the *Ḍākārṇava* again relies on the classical taxonomy of the “moisture-born botfly and mosquito.”²⁸¹

“Moon Unit” (Kalā)

The meaning of *kalā*, in the sense of a goddess with a moist habitat, has not been clarified; Sugiki translates “some creature.” The word *kalā* is used in the *Ḍākārṇava* as a common technical term of Ayurvedic physiology and tantric

²⁷⁵ *Mānavadharmasāstra* 1.45 (ed. Jolly 1887: 5): *svedajaṃ daṃśamaśakam yūkā-makṣikamatkuṇam*.

²⁷⁶ For a relatively late example, see *Rājanighaṇṭu* 19.180 (ed. Bhaṭṭācāryya et al. 1933?: 478): *yūkā tu [...]svedajāḥ [...] smṛtaḥ*.

²⁷⁷ *Vimalaprabhā* on *Kālacakratantra* 1.34c: *bāhye vāyuyonir aṇḍajāḥ, adhyātmani yūkāḥ | bāhye uḍakayoniḥ kṛmikulādayaḥ saṃsveda-jāḥ, śarīre 'pi kṛmikulādīni...* (ed. Upadhyaya

1986: 175).

²⁷⁸ Elsewhere in the *Ḍākārṇava*, *Apabhraṃśa juttaī* corresponds to Sanskrit *yuktakam, juttaū* to *yuktā, juvāi* to *yuvatī*, etc. (Chaudhuri 1935: 89, 141).

²⁷⁹ Ratnachandraci 1927: 861.

²⁸⁰ See also Turner 1966: 349 No. 6110.

²⁸¹ *Mānavadharmasāstra* 1.45a (ed. Jolly 1887: 5).

yoga,²⁸² but not in a context that immediately calls to mind waterborne fauna. On the macrocosmic level, a *kalā* is a unit of decrement or increment in the phase of the moon, and on the microcosmic level, sixteen *kalās* constitute a full buffer of male reproductive fluid. This terminology was established before the emergence of the *Ḍākārṇava* and continued to be used in this tantra's yogic system.²⁸³ With this in mind, *Kalā*, in the sense of a resident of a moist habitat, would be the goddess who animates (male) seminal plasma. Curious as this may seem, it is in accord with the tantric notion of male and female reproductive systems generating the energies of their gender opposites.

3 ANALYSIS OF THE 108 FAUNA NAMES

THE FOREGOING IDENTIFICATIONS shed new light on the formation of the *Ḍākārṇava*'s fauna assembly. The water environ has been populated by drawing on the classical taxonomy of the moisture-born, and, most likely, on Sanskrit pharmacopoeias. These sources detail the same species of insects, food fish and shellfish that populate the *Ḍākārṇava*'s water environ. The populations of the other two environs also share commonalities with the fauna lists in these sources.²⁸⁴ The *Ḍākārṇava*'s fauna assemblage was also expanded by multiplying taxons into subspecies²⁸⁵ or having them recur in other environs,²⁸⁶ as though the goddess(es) were interpenetrating different habitats in a holistic way. This kind of multiplicity or reuse is widespread across all environs and is clearly purposive.²⁸⁷ It more generally demonstrates the universality of the maṇḍala goddesses. For instance, *Kāṣṭhacaṭī* (wind 21) evokes *Kāṣṭhakārī*, the Carpenter Woman of the caste-woman circle; *Lohapṛṣṭhā* (wind 34) evokes *Lohakārī*, the Ironsmith Woman, and so on. The vernacular wording of several fauna names likewise signifies that the goddess manifests in low as well as high forms. Some types of fauna were probably repeated in different environs as a way of substituting for unrecognisable names in

²⁸² For some background see White 1996: 35–45.

²⁸³ See for instance *Laghutantraṭīkā* 9: *evaṃ ṣoḍaśakalāpūrṇaṃ maṇyantargataṃ yadā sukhaṃ dadāti...* (ed. Cicuzza 2001: 143). The “sixteen digits” are also a category of the *Ḍākārṇava*'s yogic system; see, for instance Chaudhuri 1935: 10.

²⁸⁴ The catalogue of *Suśrutasaṃhitā* 1.46.53–138, as studied by Zimmermann (1987: 103–111, 225–229), includes some of the *Ḍākārṇava*'s new taxons—*śyena* (Senā), *sārikā*, *vartīra* (Vāṭīrī), *gargara*, etc.—as well

as synonyms: *hārīta*, *dātyūha* (as named in the *Vimalaprabhā*), *śiśumāra* (Sūṣī), etc.

²⁸⁵ Examples (refer to the Appendix): Hound (1), Sheep (5), Deer (7), *Caṭakī* (44), etc.

²⁸⁶ Examples (refer to the Appendix): Horse (2, land & water), Elephant (3, land & water), Tigress (14, land & water), Crow (49, air & land), etc. See also the discussion of the name *Karṇāṭī*.

²⁸⁷ Sugiki (2022: 11) calls this “a confusion or peculiar logic.”

the original set. As can be seen from the *Appendix*, there were considerable differences in the interpretation of particular taxons, not just among the Tibetan translators but also, it seems, at the points of origin of these traditions.²⁸⁸

While the *Ḍākārṇava*'s fauna assemblage was evidently expanded by drawing on nonreligious treatises of various kinds, the redactor also demonstrates some personal familiarity with the biosphere. Novel synonyms such as *gudabulikā*, *gaḍinī*, *bilāḍī*, *kuṅkumarolā* and *kākajaṅghakī* (wind environ 9, 13, 26, 30, 32) show some knowledge of the appearance and behavior of their referents, and were not just cribbed from the *śāstras*. As many of the *Ḍākārṇava*'s additional aquatic fauna are native to the lower Ganges Delta and the Bay of Bengal coastline—the gagora and silond catfish, the water monitor, the river dolphin, the prawn, the ilisha, the windowpane oyster—it is likely that the redactor was based there. These species are more representative of the food culture of the Bengal–Odisha region than of Magadha, Kashmir, the Himalayas or other inland regions of the subcontinent. The seventy-two fauna names of the **Kulikātattvanirṇaya* and *Laghutantraṭṭikā* display similar biogeographic associations. Taking into account the ranges of certain types of fauna in this set—the otter (*udrī*, 19), civet (*śālījātakī*, 31), saltwater crocodile (*kumbhīrī*, 21), white-rumped shama (*bhagavatī*, 60), and Indochinese roller (*nīlākṣī*, 65), together with fauna names that may have Dravidian origins (*anilā*, 67; *ambarikā*, 72)—it is more likely that the “Oḍyāna” of this tradition was located near India's eastern coastline than, as is often assumed, in the Swat Valley of Pakistan.

4 CONCLUSIONS

THIS STUDY HAS IDENTIFIED several previously undetermined or imprecisely understood taxons in a tantric Buddhist tradition that reflects the biogeographical as well as the linguistic milieu of the lower Ganges Delta circa 970–1030. The development of fauna name sets in this tradition has been clarified by demonstrating commonalities with medical and taxonomical discourses in Sanskrit as well as overlooked tantric texts such as the **Kulikātattvanirṇaya* and **Kālacakrapāda*'s manual on the *gaṇacakra*. A fully detailed picture of the *Ḍākārṇava*'s fauna assemblage can now be formed. The present analysis has unearthed Indic zoonyms, not noticed before in other period sources, for various species: the red-vented bulbul, ringneck parrots, the giant flying squirrel, the Indian golden oriole, the muntjac deer, the dhole, the Asian water monitor, the jinga shrimp, the windowpane oyster. Further research may be able to confirm

²⁸⁸ Refer to the translations and, in some cases, the Sanskrit synonyms of Gavalī (33), Iṣukī (35), Pāji (47), Bheḍinī (55), Pārī (?)

56), Kokilākṣī (58), Anilā (67), Bheruṇḍī (71) and Ambarakī (72), among others.

or revise the identifications of various fauna names (*komalā*, *vrkṣāriṇī*, *bhāmbhā*, *śilī*, *muktikī*), while other names will remain vague without additional context (*citri*, *mantri*, *kāṣṭhacaṭī*, *vyāḍā*, *citriṇī*, *jalanārī*, *karnāṭī*) or are not expected to be clarified further with the data analyzed here. Future work on this topic would benefit from access to a periodized, searchable corpus of premodern vernacular writings, more assiduous collection of local names for fauna in Asia, and a systematic approach to the historicization and lexicography of Indo-Tibetan texts.

ACKNOWLEDGMENTS

PART OF THE INITIAL RESEARCH for this article was carried out in a collaborative project involving the author and Tsunehiko Sugiki, which received funds from 84000: *Translating the Words of the Buddha* (<http://84000.co>). I thank the journal's anonymous reviewers for comments that led to this article being substantially improved. I also thank Miroj Shakya for assistance from the Nepalese side. I dedicate this article to Kimiaki Tanaka, whose book *Mandara Ikonorojī* gave me my first glimpse of the Heruka maṇḍala of the *Ḍākārṇava* over thirty years ago. The credits and rights associated with photographs reproduced in this article (all photographs have been cropped to facilitate presentation) are listed in the following **Picture Credits** section.

APPENDIX: CONCORDANCE OF THE SEVENTY-TWO FAUNA GODDESS NAMES

THIS APPENDIX provides a concordance of the names of the seventy-two fauna goddesses listed in the **Kulikātattvanirṇaya*, Vajrapāṇi's *Laghutantraṭīkā* and in their translations (D1557, D1402) and kin texts. The names are divided into two sets of thirty-six according to the internal classifications of their habitats (Table 1 and Table 2). Some of these seventy-two names have multiple counterparts among the hundred and eight fauna names of the *Ḍākārṇava*'s fifteenth chapter (15.125–129, 135–138, 167–170), according to the edition and analysis provided in this article. The names from the Tibetan translation of the *Ḍākārṇava* (D372) largely follow the edition of Tsunehiko Sugiki (2022: 174–177). Common variation in these names, such as alternation between final *ma* and *mo*, and differences in the lengths of transcribed vowels, is not recorded except in potentially significant cases.

The concordance also includes names from the Kālacakra tradition, that is, the Tibetan translation of *Kālacakrapāda's **Gaṇacakravīdhi* (hereafter "*Gaṇa*," D1393)—with variants from Dharmākaraśānti's manual (D1359) noted where appropriate—and the two major Kālacakra texts in Sanskrit. Lexica from the Tibetan translations of the *Kālacakra* and *Vimalaprabhā* (D1346, D1347) are not included because it differs little from the translations of fauna names in the Tibetan *Laghutantraṭīkā*. In the system of the *Kālacakra*, the fauna names are mostly worded in the masculine gender, although they are still correlated with goddesses.

Notes on the correspondences between the names in the *Ḍākārṇava*, *Laghutantraṭīkā* and *Kālacakra* were previously published by Sugiki (2022: 54 n. 187, 55 n. 192, 60 n. 201), in which twenty-five names had no identified counterparts (5, 9, 21, 29, 31, 32, 34, 35, 37, 40, 41, 47, 54–60, 64, 66, 69, 70–72). In the present, fully revised and expanded concordance, all but four of the seventy-two names (57, 58, 69, 64, 69) have been identified with their counterparts, while at least ten remain a matter of conjecture (31, 32, 34, 35, 37, 47, 55, 56, 66, 71).

Table 1: The 36 land, water and forest fauna goddesses of the *Kulikā-Laghutantraṭīkā* tradition. Footnotes are placed at the end of the table.

	<i>Kulikā</i> (D1557)	<i>Laghutantraṭīkā</i> & D1402	<i>Ḍākārṇava</i> & D372	<i>Gaṇa</i> (D1393)	<i>Kālacakra</i>
1	<i>khyi mo</i>	Śvānī (Hound) <i>khyi mo</i>	Śvānī (15.137a, Land 19) Bṛhacchvānikā (15.137d, Land 27) Grāmanivāsinī (15.138d, Land 36)	<i>khyi mo</i> <i>khyi chen mo</i> <i>grong na gnas pa mo</i>	<i>śva</i> (3.149a, 1)
2	<i>rta mo</i>	Aśvī (Horse) <i>rgod ma</i>	Turagī (15.136a, Land 10) Vaḍavī (15.168c, Water 18)	<i>rta mo</i> <i>rgod ma</i>	<i>aśva</i> (3.149a, 2)
3	<i>glang po ma</i>	Hastinī (Elephant) <i>glang ma</i>	Gajī (15.135d, Land 5) Dantini (15.168d, Water 19) Daṇḍārī (15.137b, Land 22)	<i>glang chen</i> <i>glang chen mo</i> <i>ḍan ḍa ri mo</i>	<i>hasti</i> (3.149a, 4)
4	<i>ba</i>	Gauḥ (Cow) <i>ba</i>	Gāvī (15.136a, Land 8)	<i>ba</i> <i>ba lang</i>	<i>go</i> (3.149a, 3)
5	<i>lug ma</i>	Meṣī (Sheep) <i>lug mo</i>	Bheḍī (15.136a, Land 16) Eḍakī (15.136d, Land 18) (conjectured: Mahiṣī, 15.136a, Land 9)	<i>bhi ḍi ma</i> <i>lug mo</i> (<i>ma he mo</i>)	<i>meṣa</i> (3.149a, 5)
6	<i>ra mo</i>	Ajī (Goat) <i>ra mo</i>	Ajakī (15.136d, Land 17)	<i>ra mo</i> <i>ra</i>	<i>aja</i> (3.149a, 6)
7	<i>dgas ma</i>	Hariṇī (Deer) <i>ri dgas mo</i>	Mṛgī (15.135d, Land 6) Mūñjakī (15.137b, Land 23) Citriṇī (15.138b, Land 31)	<i>ri dgas</i> <i>mau dznyā ka</i> <i>bkra mo</i>	<i>hariṇa</i> (3.149a, 7)
8	<i>bong ma</i>	Kharī (Donkey) <i>bong mo</i>	Gardabhī (15.136c, Land 15)	<i>bong mo</i> <i>bong bu</i>	<i>khara</i> (3.149a, 8)
9	<i>phag mo</i>	Sūkārī (Swine) <i>phag mo</i>	Sūkārī (15.137a, Land 20)	<i>phag mo</i> <i>phag pa</i>	<i>śūkara</i> (3.149a, 9)

Table 1: The 36 land, water and forest fauna goddesses of the *Kulikā-Laghutantraṭīkā* tradition. Footnotes are placed at the end of the table.

	<i>Kulikā</i> (D1557)	<i>Laghutantraṭīkā</i> & D1402		<i>Ḍākārṇava</i> & D372		<i>Gaṇa</i> (D1393)	<i>Kālacakra</i>
10	<i>rnga mo</i>	Uṣṭrī (Camel)	<i>rnga mo</i>	Kuṭikā (15.138b, Land 32)	<i>rnga mo</i>	<i>rnga mo</i>	<i>uṣṭra</i> (3.149a, 10)
11	<i>nags kyi wa mo</i>	Araṇyaśvānī (Dhole)	<i>'brog dgon pa'i khyi mo</i>	Araṇī (15.137d, Land 26)	<i>nags ma</i>	<i>nags kyi khyi</i>	<i>āraṇyaśvā</i> (3.149d, 27)
12	<i>nags mtha'i seng ge ma</i>	Araṇyasimhīnī (Jungle Cat)	<i>'brog dgon pa'i seng ge mo</i>	Simghī (15.135c, Land 1) Bhāmbhā (135c, Land 3)	<i>seng mo</i>	<i>'dam seng ge</i>	<i>sasimha</i> ²⁸⁹¹ (3.149d, 28)
13	<i>bse ru gcig ma</i>	Gaṇḍī (Rhino)	<i>bse mo</i>	Gaṇḍī (15.136b, Land 12)	<i>bse mo</i>	<i>bse</i>	<i>gaṇḍī</i> (3.149c, 19)
14	—	Vyāghrī (Tigress)	<i>stag mo</i>	Vyāghrī (15.135c, Land 2) Vyāghrī (15.168d, Water 20)	<i>stag mo</i> <i>stag mo</i>	<i>stag</i>	<i>vyāghra</i> (3.149c, 20)
15	<i>ri khrod ma</i>	Ṛkṣī (Bear)	<i>dom mo</i>	Bhallī (15.137a, Land 21)	<i>dom mo</i>	<i>dred</i>	<i>ṛkṣa</i> (3.149c, 21)
16	<i>ne'u le ma</i>	Nakulī (Mongoose)	<i>sre mo</i> ²⁹⁰	Nakulī (15.138c, Land 33)	<i>sre mo</i>	<i>sre mong</i>	<i>nakula</i> (3.149c, 22)
17	<i>'bri mo</i>	Camarī (Yak)	<i>'bri mo</i>	Camarā (15.136b, Land 13)	<i>'bri</i>	<i>'bri</i>	<i>camarī</i> (3.149c, 23)
18	<i>sbyang ma</i>	Jambukī (Jackal)	<i>ce sbyang ma</i>	Jambukī (15.136b, Land 11) Jambukī (15.168d, Water 21)	<i>ce spyang mo</i> <i>ce spyang mo</i>	<i>ce spyang ma</i>	<i>jambuka</i> (3.149c, 24)
19	<i>sram mo</i>	Udrī (Otter)	<i>sram mo</i>	Oḍrikā (15.167b, Water 6)	<i>chu sram</i>	<i>sram</i>	<i>udra</i> (3.149c, 25)
20	<i>byi la ma</i>	Biḍālī (Cat)	<i>byi la mo</i>	Mārjārakī (15.128a, Land 7) Bilāḍī (→ Anilā, 67)	<i>byi la mo</i>	<i>byi la</i>	<i>biḍāla</i> (3.149c, 26)

Table 1: The 36 land, water and forest fauna goddesses of the *Kulikā-Laghutantraṭīkā* tradition. Footnotes are placed at the end of the table.

	<i>Kulikā</i> (D1557)	<i>Laghutantraṭīkā</i> & D1402		<i>Ḍākārṇava</i> & D372		<i>Gaṇa</i> (D1393)	<i>Kālacakra</i>
21	<i>chu srin</i> <i>kumbhi ra</i> <i>ma</i>	Kumbhūrī (Estuarine Crocodile)	<i>kumbhi</i> <i>rī</i>	Jalaguhī (15.167d, Water 10)	<i>chu yi</i> <i>phug ma</i>	<i>chu srin</i> <i>kum bhi</i> <i>ra</i>	<i>kumbhūra</i> (3.149b, 11)
22	<i>’gron bu</i> <i>ma</i>	Kapardikā (Cowrie)	<i>’gron bu</i> <i>mo</i>	Kapardī (15.169a, Water 24)	<i>’gron bu</i> <i>ma</i>	<i>’gron</i> <i>bu’i</i> <i>phung</i> <i>po</i>	<i>ākhu</i> (?291) (3.149b, 12)
23	<i>chu srin</i> <i>byis pa</i> <i>gsod ma</i> ²⁹⁴	Karkaṭī (Crab)	<i>karka ṭī</i>	Karkaṭī (15.168a, Water 13) *Karkaṭī (15.127d, Air 24)	<i>ka ka ru</i> <i>mo</i> <i>ka kka bī</i>	— ²⁹²	<i>kulīra</i> (3.149b, 13)
24	<i>nya mo</i>	Matsī (Fish)	<i>nya mo</i>	Macchā (15.167a, Water 3)	<i>nya</i>	<i>nya</i> <i>skam</i> ²⁹³	<i>jhaṣa</i> (3.149b, 14)
25	<i>chu srin</i> <i>ma ka ra</i> <i>mo</i>	Makarī (Water Monster)	<i>srin mo</i>	Makarī (15.167a, Water 1)	<i>ma ka ra</i> <i>mo</i>	<i>chu srin</i>	<i>makara</i> (3.149b, 15)
26	<i>rus sbal</i> <i>chung shos</i> <i>ma</i>	Dardūrī (Frog)	<i>sbal pa</i> <i>mo</i>	Dardurī (15.129b, Air 35) Viṅgī (15.167b, Water 4) Durdurī (15.169c, Water 29)	<i>sbal mo</i> <i>sbal mo</i> <i>dud du</i> <i>ra ma</i>	<i>sbal pa</i>	<i>dardura</i> (3.149b, 16)
27	<i>rus sbal mo</i>	Kūrmī (Tortoise)	<i>rus sbal</i> <i>mo</i>	Kūrmā (15.167a, Water 2) Kacchapī (15.167b, Water 5)	<i>rus sbal</i> <i>rus sbal</i>	<i>rus sbal</i> <i>khog pa</i>	<i>kūrma</i> (3.149b, 17)
28	<i>dung mo</i>	Śaṅkhinī (Conch)	<i>dung mo</i>	Śaṅkhā (15.169a, Water 23)	<i>dung mo</i>	<i>dung</i>	<i>śaṅkha</i> (3.149b, 18)
29	<i>rmigs pa</i> <i>ma</i>	Godhī (Monitor)	<i>go dhi</i>	Guhī (15.138c, Land 35) Jalaguhī (→ Kumbhūrī, 21)	<i>phug pa</i> <i>mo</i>	<i>go dhā</i> <i>pa</i> ²⁹⁵	<i>godhā</i> (3.150a, 29)
30	<i>byi ba ma</i>	Mūṣakī (Rat)	<i>byi ba</i> <i>mo</i>	Mūṣī (15.136c, Land 14) Mūṣikā (15.168b, Water 15)	<i>byi ba</i> <i>chu byi</i> <i>mo</i>	<i>byi ba</i>	<i>ākhu</i> (3.150a, 30)
31	<i>ma he ma</i> (<i>sic</i>) ²⁹⁶	Śālījātakī (Civet)	<i>shā li</i> <i>dza ti ki</i>	? (conjectured: Vyāḍā, Land 30)	(<i>bhim</i> <i>bha</i>)	<i>sa li dza</i> <i>ta ka</i>	<i>śālījāta</i> (3.150a, 31)

Table 1: The 36 land, water and forest fauna goddesses of the *Kulikā-Laghutantraṭīkā* tradition. Footnotes are placed at the end of the table.

	<i>Kulikā</i> (D1557)	<i>Laghutantraṭīkā</i> & D1402	<i>Ḍākārṇava</i> & D372	<i>Gaṇa</i> (D1393)	<i>Kālacakra</i>
32	<i>spre'u ma</i>	Vānarī (Monkey)	<i>spre'u mo</i>	? (may be taken literally as "Forest Dweller")	<i>spre'u kapi</i> (3.150a, 32)
33	<i>ba men ma</i> (sic) ²⁹⁷	Gavalī (Hare)	<i>ri bong ma</i>	Śaṣī (15.135d, Land 4)	<i>ri bong śaśaka</i> (3.150a, 33)
34	<i>srog chags sha la ki ma</i> ²⁹⁸	Śallakī ²⁹⁹ (Porcupine)	<i>gzugs mo</i>	? (conjectured: Śilī, Water 9)	<i>(shī li ma) gzugs mo śallakī</i> (3.150a, 34)
35	<i>mdzes tta krit mo(?)</i>	Iṣukī (Pangolin?)	<i>iṣṭa ki</i>	? (conjectured: Vyāḍā, Land 30)	<i>(sbrul mo) i ṣhu ka pa shu</i> (3.150a, 35)
36	<i>rtsangs pa mo</i>	Kṛkalāsī (Tree Lizard)	<i>rtsangs pa ma</i>	Kṛkī (15.138c, Land 34)	<i>rtsangs sbal pa kṛka</i> (3.150a, 36)

Footnotes to Table 1

²⁸⁹ *sasiṇha* || read: (*āraṇya*-)*siṇha*.

²⁹⁰ *sre mo* || corr.; D1402: *spre mo*.

²⁹¹ See notes 246 and 249 in the section on Kapardī.

²⁹² D1393 om.; D1359: *ka ka ri'i phung po* (read: *kaṃ ka ri'i*-; cf. Turner 1966: 142 No. 2816).

²⁹³ *nya skam* || D1393; D1347: *nya skam po*; D1359: *nya sram* (sic).

²⁹⁴ This is a translation of *śiśumāra* (see Sūṣī, Water 14).

²⁹⁵ *go dhā pa* || em.; D1393: *go ta pa*.

²⁹⁶ *ma he ma* || Skt. **meṣakī* (presumed confusion with *mūṣakī*, the previous taxon).

²⁹⁷ *ba men ma* || Skt. **gavaya*.

²⁹⁸ *srog chags sha la ki ma* || corr.; D1557: *srog chags shi la ki ma*.

²⁹⁹ *śallakī* || corr.; ed.: *sallakī*.

Table 2: The 36 avian fauna goddesses of the *Kulikā-Laghutantraṭīkā* tradition. Footnotes are placed at the end of the table.

	<i>Kulikā</i> (D1557)	<i>Laghutantraṭīkā</i> & D1402		<i>Ḍākārṇava</i> & D372		<i>Gaṇa</i> (D1393)	<i>Kālacakra</i>
37 (1)	<i>khug rta ma</i> ³⁰⁰	Cātākī (Cuckoo)	<i>tsā ta ki</i>	? (conjectured: Citrī, 15.125c, Air 3)	(<i>bkra ba mo</i>)	<i>tsā ta ka</i> ³⁰¹	<i>mānī pakṣī</i> (3.150b, 37)
38 (2)	<i>ne tso ma</i>	Śukī (Parrot)	<i>ne tso ma</i>	Sukī (15.127a, Air 15)	<i>ne tse</i>	<i>ne tse</i>	śuka (3.150b, 38)
39 (3)	<i>bya sha ri ka mo</i>	Sārikā (Myna)	<i>ri skegs ma</i>	Sārikā (15.128b, Air 28)	<i>sā ri mo</i>	<i>sā ri kā</i>	śārikā (3.150b, 40)
40 (4)	<i>bya ko ki la ma</i>	Kokilā (Koel)	<i>khu byug ma</i>	? (conjectured: Mantrī, 15.127a, Air 16)	<i>sngags ma</i>	<i>khu byug</i>	kokilā (3.150b, 39)
41 (5)	<i>bya la bi ma</i>	Lāvī ³⁰² (Jungle Quail)	<i>lā [ba] mo</i> ³⁰³	Vāṭirī (15.128d, Air 31)	<i>bā ṭi rī</i>	<i>bya wang</i>	lāva (3.150c, 41)
42 (6)	<i>phug ron ma</i>	Pārāvātī (Pigeon)	<i>phug ron ma</i>	Pārāvātī (15.126c, Air 11)	<i>phug ron</i>	<i>phug ron</i>	pārāvata (3.150c, 42)
43 (7)	<i>khwa mo</i>	Bakī (Heron)	<i>bya dkar mo</i>	Bakī (15.125d, Air 5)	<i>bya gag</i>	<i>so bya</i>	baka (3.150c, 43)
44 (8)	<i>mchil pa mo</i>	Caṭākī (Sparrow)	<i>tsa ṭa ki</i>	Caṭikā (15.127b, Air 20) Kāṣṭhacaṭī (15.127c, Air 21)	<i>mchil pa mo</i> <i>shing bye'u mo</i>	<i>mchil pa</i>	caṭakaḥ (3.150c, 44)
45 (9)	<i>ngur pa ma</i>	Cakravākī (Shelduck)	<i>ngur pa mo</i> ³⁰⁴	Cakravākī (15.127c, Air 22)	<i>ngur pa ma</i>	<i>ngur pa</i>	cakravāka (3.150c, 45)
46 (10)	<i>ngang pa ma</i>	Hamsī (Goose)	<i>ngang pa ma</i>	Hamsī (15.125c, Air 2)	<i>ngang mo</i>	<i>ngang pa</i>	hamṣa (3.150c, 46)
47 (11)	<i>chu sreg ma</i> ³⁰⁵	Pāṇī ³⁰⁶ (Falcon)	<i>hor pa mo</i>	? (conjectured: Lohapṛṣṭhā, 15.129a, Air 34)	(<i>kang ka mo</i>)	<i>byan lag</i>	yājī (3.151c, 63)
48 (12)	<i>bya ko dha ma</i>	Vṛkṣārīṇī ("Tree-Hater")	<i>ljon shing dgra ma</i>	Vṛkṣārīṇī (15.127d, Air 23)	<i>bri kṣa ra nī</i>	<i>shing gi dgra</i>	vṛkṣāri (3.151c, 64)
49 (13)	<i>krung krung mo</i> (? ³⁰⁷)	Kākī (Crow)	<i>bya rog mo</i>	Kākī (15.125d, Air 4) Bṛhatkākī (15.126c, Air 12)	<i>bya rog</i> <i>bya rog chen mo</i>	<i>khwa ta</i>	kāka (3.151b, 55)

Table 2: The 36 avian fauna goddesses of the *Kulikā-Laghutantraṭikā* tradition. Footnotes are placed at the end of the table.

	<i>Kulikā</i> (D1557)	<i>Laghutantraṭikā</i> & D1402		<i>Ḍākārṇava</i> & D372		<i>Gaṇa</i> (D1393)	<i>Kālacakra</i>
				Dronakākī (15.138a, Land 28)	<i>bya rog</i> <i>chen mo</i>		
50 (14)	<i>bya rgod</i> <i>ma</i>	Gr̥dhrī (Vulture)	<i>bya rgod</i> <i>ma</i>	Gr̥ddhā (15.127b, Air 18)	<i>bya rgod</i>	<i>bya rgod</i>	<i>gr̥dhra</i> (3.151b, 56)
51 (15)	<i>ghū ki</i> <i>mo</i> ³⁰⁸	Ghūkī (Hooting Owl ³⁰⁹)	<i>'ug pa</i> <i>mo</i>	Ulūkī (15.127b, Air 19)	<i>'ug ma</i>	<i>'ug pa</i>	<i>ulūka</i> (3.151b, 57)
52 (16)	<i>'ol ba mo</i>	Mṛgārīṇī (Eagle)	<i>ri dgas</i> <i>dgra ma</i>	Sṛgālīṇī (15.129b, Air 36)	<i>ri dgas</i> <i>dgra</i>	<i>hor pa</i>	<i>mṛgaripu</i> (3.151b, 58)
53 (17)	<i>bya bu</i> <i>ddha tsi li</i> <i>ka</i>	Śikhinī (Peafowl)	<i>gtsug</i> <i>phud</i> <i>can</i> <i>ma</i> ³¹⁰	Mayūrī (15.126a, Air 7)	<i>rma bya</i>	<i>rma bya</i>	<i>śikhin</i> (3.151b, 59)
54 (18)	<i>khyim bya</i> <i>mo</i>	Kukkuṭī (Fowl)	<i>bya gag</i> <i>mo</i>	Tāmracūḍī (15.126a, Air 8)	<i>zangs</i> <i>kyi gtsug</i> <i>phud ma</i>	<i>khyim</i> <i>bya</i>	<i>kukkuṭa</i> (3.151b, 60)
55 (19)	<i>bya ka ka</i> <i>mchu</i> <i>rings mo</i>	Bheḍinī(?) ³¹¹ (Hawk)	<i>bhe ḍa</i> <i>ni</i>	? (conjectured: Senā, 15.128c, Air 29)	(<i>khra</i> <i>mo</i>)	<i>khra</i>	<i>bhedra</i> (3.151b, 61)
56 (20)	<i>ha ri rda</i> <i>ka ri</i> <i>mo</i> ³¹²	†Pārī† ³¹³	<i>'ol ba</i> <i>mo</i>	? (conjectured: Komalā, 15.126b, Air 10)	(<i>'jam pa</i> <i>mo</i>)	<i>'ol ba</i>	<i>ghāra</i> (3.151b, 62)
57 (21)	<i>ngang</i> <i>skya mo</i>	Kruñcā (Crane)	<i>kh rung</i> <i>kh rung</i> <i>ma</i>	?		<i>bya long</i>	<i>śrīkuñcā</i> (3.150d, 47)
58 (22)	<i>bya ko ki</i> <i>li ku ku hi</i> <i>ma</i> ³¹⁴	Kokilākṣī (“Ember Eyes”)	<i>khu</i> <i>byug</i> <i>mig ma</i>	? ³¹⁵		<i>khu</i> <i>byug</i> <i>mig</i> ³¹⁶	<i>kokilākṣī</i> (3.150d, 48)
59 (23)	<i>bya ri ra</i> <i>tša ki ma</i>	Rajakī (Parakeet)	<i>ri ra dza</i> <i>ki</i>	Gaḍinī (15.126d, Air 13)	<i>ga ḍi ni</i>	<i>ra dza</i> <i>ka ma</i> ³¹⁷	<i>rajaka</i> (3.150d, 49)
60 (24)	<i>khra ma</i>	Bhagavatī (Robin)	<i>bha ga</i> <i>ba ti</i>	Śāmā (15.129a, Air 33)	<i>hor mo</i>	<i>bha ga</i> <i>ba ti po</i> <i>ta ki</i> ³¹⁸	<i>bhagavatī</i> (3.150d, 50)
61 (25)	<i>sreg pa</i> <i>mo</i>	Tittirī (Francolin)	<i>titti ri</i>	Tittirikā (15.125d, Air 6)	<i>sreg pa</i> <i>mo</i>	<i>sreg pa</i>	<i>tittirī</i> (3.150d, 51)

Table 2: The 36 avian fauna goddesses of the *Kulikā-Laghutantraṭīkā* tradition. Footnotes are placed at the end of the table.

	<i>Kulikā</i> (D1557)	<i>Laghutantraṭīkā</i> & D1402		<i>Ḍākārṇava</i> & D372		<i>Gaṇa</i> (D1393)	<i>Kālacakra</i>
62 (26)	<i>sa ra sa</i>	Sārasī (Sarus Crane)	<i>bzhad mo</i>	Sārasā (15.127a, Air 17)	<i>bzhad mo</i>	<i>bzhad</i>	<i>sārasā</i> (3.150d, 52)
63 (27)	<i>chu bya mo</i>	Jalakākī (Cormorant)	<i>bya rog ma</i>	Jalakākī (15.128a, Air 25)	<i>so bya mo</i>	<i>chu bya</i>	<i>nīrāviṣṭa</i> (3.151a, 53)
64 (28)	<i>chu skyar mo</i>	Balākā (Egret)	<i>chu skyar mo</i>	?		<i>chu skyar</i>	<i>balāka</i> (3.151a, 54)
65 (29)	<i>bya nī lā tsha mo</i> (?) ³¹⁹	Nīlākṣī (“Blue-Collar”)	<i>mig sngon mo</i>	Nīlagrīvī (15.128b, Air 27)	<i>lcug ma’i mgrin</i> (?)	<i>mig sngon</i>	<i>nīlākṣa</i> (3.151d, 65)
66 (30)	<i>bya bang mo</i>	Cakorī (Chukar)	<i>tsa ko ri</i>	? (conjectured: Kapiñjali, 15.126d, Air 14)	(<i>gong mo sreg</i>) ³²⁰	<i>tsa ko ra</i>	<i>śrīcakora</i> (3.151d, 66)
67 (31)	<i>bya ’ug nag mo</i>	Anilā (Squirrel)	<i>a ni la ma</i>	Bilādī (15.128a, Air 26)	<i>byi la mo</i>	<i>go bo</i>	<i>anila</i> (3.151d, 67)
68 (32)	<i>’ug pa mo</i>	Vāgbulikā (Bulbul)	<i>pha wang ma</i>	Gudabulikā (15.126b, Air 9)	<i>gu da bu li</i>	<i>pags pa’i bya chen po</i>	<i>gudamukha</i> (3.151d, 68)
69 (33)	<i>bya ka li ra mo</i> (?) ³²¹	Bukkī (White-Breasted Waterhen) ³²²	<i>bukka mo</i> ³²³	?		<i>dā tyū ha</i> ³²⁴	<i>bukki</i> (3.151d, 69)
70 (34)	<i>bya ti ti bi mo</i>	Ṭiṭṭibhī (Lapwing)	<i>ṭi ṭṭi bhi</i>	Kākajañghakī (15.128d, Air 32)	<i>kā ka dzam gha mo</i>	<i>pā dor dha sā yi nya za</i> ³²⁵	<i>pādordhva-śāyī</i> (3.151d, 70)
71 (35)	<i>bya mgo gnyis ma</i>	Bheruṇḍī (Bicephalous Bird) ³²⁶	<i>bhe ruṇḍi</i>	? (conjectured: Garuḍī, 15.125c, Air 1)	(<i>mkha’ lding</i>)	<i>khrung khrung</i> ³²⁷	<i>bheruṇḍa</i> (3.152a, 71)
72 (36)	<i>bya a mbar ki mo</i>	Ambarakī (Golden Oriole)	<i>ambha ri ka ma</i>	Kuṅkumarolā (15.128c, Air 30)	<i>gur gum lce can ma</i> (sic) ³²⁸	<i>aṃ ba ri ka</i> ³²⁹	<i>ambarika</i> (3.152a, 72)

Footnotes to Table 2

³⁰⁰ The name *khug rta ma* is more suited to Caṭakī (44).³⁰¹ *tsā ta ka* || corr. (D1359); D1393: *ya tsa ta ka*.³⁰² *lāvī* || corr.; ed. Cicuzza: *lābī*.

- ³⁰³ *lā bī mo* || em.; D1402: *lā mo*.
- ³⁰⁴ *ngur pa mo* || em.; D1402: *gyur pa mo*.
- ³⁰⁵ This name fits the following entry, Vṛkṣārīṇī (48).
- ³⁰⁶ *pāṇī* || ed. Cicuzza; D1346: *hor pa*; *Vimalaprabhā*: *mahāyājī*. See also note 160.
- ³⁰⁷ *krung krung mo* || em. (Sanskrit **krauñcī*); D1557: *krung grung mo*.
- ³⁰⁸ *ghū ki mo* || em.; D1557: *ḍā ki mo*.
- ³⁰⁹ Ghūkī, in the view of Sugiki (2022: 54 n. 187), “should be corrected into Ulūkī,” but *ghūka* is a recognised word for an owl (Dave 1985: 177).
- ³¹⁰ *gtsug phud can ma* || corr. (D1346: *gtsug phud can*); D1402: *gtsug pud can ma*.
- ³¹¹ *bheḍīnī* || ed. Cicuzza; D1346: *bhe drā*; *Vimalaprabhā*: *bhedra iti samcāṇa*.
- ³¹² *ha ri rda ka ri mo* || D1557; conj. *ha ri dra ka mo*.
- ³¹³ See note 84 (Komalā) for variants and discussion.
- ³¹⁴ *bya ko ki li ku ku hi ma* || D1557; conj.: *bya ko ki lī ku kku bha ma*.
- ³¹⁵ See the sections on Komalā and Lohapṛsthā.
- ³¹⁶ *khu byug mig* || corr. (D1359); D1393: *khu byug dang/ mig dang*.
- ³¹⁷ *ra dza ka ma* || corr.; D1393: *ra ma dza ka*; D1359: *dza ka*.
- ³¹⁸ *bha ga ba ti po ta ki* || em. (*Vimalaprabhā*: *bhagavatīti potakī*); D1393: *ba ka bi ta dang/ po ta ki dang*; D1359: *bha ga wa ti po ta ki*.
- ³¹⁹ *bya nī lā tsha mo* || conj.; D1393: *bya la tsha na tshi mo*.
- ³²⁰ *gong mo sreg* || read: *gong ma sreg*.
- ³²¹ *bya ka li ra mo* || D1402; conj.: *bya ku lī ra mo*.
- ³²² This bird, presumably named for its “chest” or breast (*bukka*), is identified as *Amaurornis phoenicurus* from its alias *dātyauhā* (Dave 1985: 124). See note 88 (Gaḍinī) for discussion.
- ³²³ *bukka mo* || em.; D1402: *pukka mi* (presumed homoeoteuton with *pukkasi*).
- ³²⁴ *dā tyū ha* || corr. (*Vimalaprabhā*: *bukkīti dātyūha*); D1393: *dā tu ha*; D1359: *dhā tā ha*.
- ³²⁵ *pā dor dha sā yi nya za* || conj. (*Vimalaprabhā*: *pādordhvaśāyī ṭiṭṭibhikā*); D1393: *pa dor dang/ sa hi dang/ nya za dang*; D1359: *pa hor ta/ swa yi dang/ nya za dang* (*nya za* is conjectured to be part of this ornithonym).
- ³²⁶ Dave (1985: 399) asserts that the *bheruṇḍa*, which “looks like it has two heads,” is the dodo, *Didus ineptus* (but gives a false-friend etymology connecting *dvidarśana* to Dutch *Dodaersen*).
- ³²⁷ According to Dave (1985: 399), the conventional *bheruṇḍa* is the aforementioned greater adjutant (see **Karkaṭī*).
- ³²⁸ **kuṇkumalolā*.
- ³²⁹ *aṃ ba ri ka* || corr.; D1359, D1393: *aṃ pa ri ka*.

PICTURE CREDITS

- Figure 1 “Black Francolin” by Kishore Bhargava is licensed under CC BY-NC 2.0.
- Figure 2 “File:Pied Cuckoo (*Clamator jacobinus*) in AP W IMG 3978.jpg” by J.M.Garg is licensed under CC BY-SA 4.0.
- Figure 3 “Red-vented Bulbul” by Patty McGann is licensed under CC BY-NC 2.0.
- Figure 4 “LK-yala-taube-1” by Balou46 is licensed under CC BY-SA 3.0.
- Figure 5 “Rose-ringed Parakeet - *Psittacula krameri*” by Srikaanth Sekar is licensed under CC BY-SA 2.0.
- Figure 6 “*Leptoptilos dubius* (Assam, 2007)” by Yathin S Krishnappa is licensed under CC BY-SA 3.0.
- Figure 7 “Crab-plover, Pallana beach, Alleppey 14” by Drsssuresh1961 is licensed under CC BY-SA 4.0.
- Figure 8 “red giant flying squirrel,” © Kuan-Chieh (Chuck) Hung, is licensed under CC BY-NC-SA 4.0.
- Figure 9 “Sephinjuri Birds-27 - *Coracias affinis*” by Vijay Anand Ismavel is licensed under CC BY-NC 2.0.
- Figure 10 “File:Purple-rumped sunbird 11.jpg” by Tisha Mukherjee is licensed under CC BY-SA 4.0.
- Figure 11 “File:Indian Golden Oriole.jpg” by Jennystar1994 is licensed under CC BY-SA 4.0.
- Figure 12 “Red-wattled lapwing (*Vanellus indicus*) 2019 013” by Umang Jung Thapa is licensed under CC BY-SA 4.0.
- Figure 13 “White-rumped Shama (*Copsychus malabaricus*)” by David Tan is licensed under CC BY-NC-SA 2.0.
- Figure 14 “brahminy kite 17” by Jim Bendon is licensed under CC BY-SA 2.0.
- Figure 15 “Clouded Leopard *Neofelis nebulosa* by Dr Raju Kasambe” is licensed under CC BY-SA 4.0.
- Figure 16 “Indian Wild Dog a.k.a Dhole” by Sumeet Moghe is licensed under CC BY-SA 3.0.
- Figure 17 “Scarred Stray - Goa, India” by Greg Younger is licensed under CC BY-SA 2.0.
- Figure 18 “Pearly nautilus shell (*Nautilus pompilius*)” is licensed under CCo 1.0.
- Figure 19 “Photo 263333183,” © Dirk Mezger is licensed under CC BY-NC 4.0.
- Figure 20 “Photo 166275660,” © Mark Bolnik is licensed under CC BY-NC 4.0.

ABBREVIATIONS

- D Sde dge *Bka' 'gyur* and *Bstan 'gyur* (Ui et al. 1934)
- MS *Ḍākārṇavamahāyoginītantrārāja*, National Archives (Kathmandu) manuscript *tr* 293 *vi* 265, NGMPP A 138/9
- NGMPP Nepal-German Manuscript Preservation Project (<https://www.aai.uni-hamburg.de/en/forschung/ngmcp>)
- OED Oxford English Dictionary (<https://www.oed.com>)

PRIMARY SOURCES

- Abhidhānaviśvalocana* of Śrīdharasena. Sanskrit and Tibetan edition: Jamspal and Wayman 1992. Tibetan translation: D4453, D4454.
- Amarakośa* (*Nāmalīṅgānuśāsana*) of Amarasiṃha. Sanskrit and Tibetan edition (part): Vidyābhūṣaṇa 1911. Tibetan translation: D4299.
- Aṣṭāṅganighaṇṭu* of Vāhata. Sanskrit edition: Sharma 1968–69.
- Uddhārakośa*. Sanskrit edition: Kak and Shastri 1941.
- Kālacakra* (*Śrīmatkālacakratantrarāja*) of Yaśas. Sanskrit edition (chapter 3): Dwivedi and Bahulkar 1994. Tibetan translation: D1346.
- **Kālacakragāṇacakraavidhi* of Dharmākaraśānti. Tibetan translation: D1359.
- Kulikā* (**Kulikātattvanirṇaya*) of *Oḍyānasiddha. Tibetan translation: D1557.
- **Gaṇacakraavidhi* of *Kālacakrapāda. Tibetan translation: D1393.
- Dravyaguṇasaṃgraha* of Cakrapāṇidatta. Sanskrit edition: Āchārya 1905.
- Ḍākārṇava* (*Ḍākārṇavamahāyoginītantrarāja*). Sanskrit edition & English translation (chapter 15): Sugiki 2022: 73–162. Tibetan translation: D372, Sugiki 2022: 163–187. Manuscript: NGMPP A 138/9 ('MS').
- Ḍākinīvajrapañjara*. Tibetan translation: D419.
- Trikāṇḍaśeṣa* of Puruṣottamadeva. Sanskrit edition: Seelakkhndha Maha Thera 1916.
- Niṣpannayogāvalī* of Abhayākara Gupta. Sanskrit edition: Lee 2004. Tibetan translation: D3141.
- Mānavadharmasāstra* of Manu. Sanskrit edition: Jolly 1887.
- Mṛgapakṣīśāstra* of Haṃsadeva. English translation: Sundaracharya 1927.
- Rājanighaṇṭu* of Naraharipaṇḍita. Sanskrit edition: Bhaṭṭācāryya et al. 1933?.
- Laghutantraṭīkā* of Vajrapāṇi. Sanskrit edition: Cicuzza 2001. Tibetan translation: D1402.
- Śrīvajrabhairava* (*Śrīvajrabhairavamahāyogatantra*). Sanskrit edition (part): n. a. 2007. Tibetan translation: D468.
- Sarvabuddhasamāyoga* (*Śrīsarvabuddhasamāyogaḍākinījālasaṃvara*). Sanskrit edition (part): Negī 2018. Tibetan translation: D366.
- Subhāṣitaratnakośa* of Vidyākara. Sanskrit edition: Kosambi and Gokhale 1957.
- Siddhasāra* of Ravigupta. Sanskrit edition: Emmerick 1980. Tibetan translation: D4434.
- **Sādhanaṣṭakapadmarāganidhi* of Jayasena. Tibetan translation: D1516; edition: Sugiki 2022: 195–386.
- Suśrutasaṃhitā* of Suśruta. Sanskrit edition: Āchārya 1945.
- Vimalaprabhā Ṭīkā* of Puṇḍarīka. Sanskrit editions: Upadhyaya 1986 (section 1), Dwivedi and Bahulkar 1994 (section 3), Lokesh Chandra 2010 (partial facsimile). Tibetan translation: D1347.

BIBLIOGRAPHY

- Acharya, Diwakar (2020), "Dolphin Deified: The Celestial Dolphin, an Upaniṣadic Puzzle, and Viṣṇu's First Incarnation," *Electronic Journal of Vedic Studies*, 25/1: 1–30. doi: 10.11588/ejvs.2020.1.10613.
- Āchārya, Nārāyaṇ Rām (1945) (ed.), *The Suśrutasaṃhitā of Suśruta, with various readings, notes and appendix, etc.* (Bombay: Satyabhāmābāi Paṇḍurang for the Nirṇaya Sāgar Press).
- Āchārya, Vaidya Jadāvī Tricumjī (1905) (ed.), *Dravya Gooṇa Sangraha, (A Sanskrit System of Materia Medica) by Chakrapāṇi Datta with The Commentary or Dravya Gooṇa Sangraha Tīkā by Shivadās Sen* (Bombay: Tukārām Jāvajī), ARK: ark:/13960/s2x84r2242w.
- Alam, A. B., Sarowar, M., Badhon, M. K., and Sarker, M. W. (2015), *Biodiversity of Tanguar Haor: A Ramsar Site of Bangladesh. Volume III: Fish* (Dhaka: International Union for Conservation of Nature, Bangladesh Country Office), ISBN: 978-984-33-9005-9, <https://portals.iucn.org/library/node/46330>, (viewed 7 May 2024).
- Alam, A. B., Sarowar, M., Chowdhury, Mohammad Shahad Mahabub, and Sobhan, Istiak (2012), *Biodiversity of Tanguar Haor: A Ramsar Site of Bangladesh. Volume I: Wildlife (Amphibians, Reptiles, Birds and Mammals)* (Dhaka: International Union for Conservation of Nature, Bangladesh), ISBN: 978-984-33-5057-2, <https://portals.iucn.org/library/node/10152>, (viewed 7 May 2024).
- Alam, Hūṣang, and Clinton, Jerome W. (1989), "BOLBOL "nightingale"," in *Encyclopædia Iranica*, XV (3–4), 336–8, <https://iranicaonline.org/articles/bolbol-nightingale>, (viewed 7 May 2024).
- Ali, Sālim, and Ripley, S. Dillon (1978), *Handbook of the Birds of India and Pakistan, Together With Those of Bangladesh, Nepal, Bhutan and Sri Lanka* (Delhi/London/New York: Oxford University Press).
- Andresen, Jensine (1997), "Kālacakra: Textual and Ritual Perspectives," PhD thesis (Harvard University).
- Banerji, Amiya Kumar (1972), *West Bengal District Gazetteers: Hooghly* (Calcutta: Sri Durgadas Majumdar/West Bengal District Gazetteers), ARK: ark:/13960/t4km9tg9b.
- Bhaṭṭācāryya, Jīvānandavidyāsāgara, Bhaṭṭācāryya, Aśubodhividyaḥbhūṣaṇa, and Bhaṭṭācāryā, Nityabodhavidyāratna (1933?) (eds.), *Rājanighaṇṭuḥ. Mahāmahopādhyāya-Śrīmannaraharipaṇḍitaviracitaḥ* (Kalikātā: Siddheśvarayantra), ARK: ark:/13960/t2d87xf6c.
- Billerman, S. M., Keeney, B. K., Rodewald, P. G., and Schulenberg, T. S. (2022) (eds.), *Birds of the World* (Ithaca, NY: Cornell Laboratory of Ornithology), <https://birdsoftheworld.org/bow/home>, (viewed 20 Dec. 2024).
- Bollée, Willem (2006), *Gone to the dogs in ancient India* (München: Bayerische Akademie der Wissenschaften). doi: 10.11588/xarep.00004243.
- Bühnemann, Gudrun (2008), *Buddhist Iconography and Ritual in Paintings and Line Drawings from Nepal* (Lumbini: Lumbini International Research Institute).
- Cayley, Neville W. (1931), *What bird is that? A Guide to the Birds of Australia* (Sydney: Angus & Robertson), ARK: ark:/13960/t2s53h20f.

- Chanda, Angsuman, and Jana, Arun (2021), "A Comparative Review on Freshwater Fish Fauna Between West Bengal and Odisha, Two Middle-East Indian States," *Journal of Fisheries*, 9/3: 1–19. DOI: [10.17017/j.fish.369](https://doi.org/10.17017/j.fish.369).
- Chaudhuri, Nagendra Narayan (1935) (ed.), **डकार्णवः**. *Studies in the Apabhraṃśa Texts of the Ḍākārṇava* (Text from Nepal, 2; Calcutta Sanskrit Series X; Calcutta: Metropolitan Printing and Publishing House Ltd), ARK: [ark:/13960/t5hb4gj0r](https://nbn-resolving.org/urn:nbn:in:cc0:t5hb4gj0r).
- Cicuzza, Claudio (2001) (ed.), *The Laghutantraṭīkā by Vajrapāṇi. A Critical Edition of the Sanskrit Text* (Roma: Istituto Italiano per l'Africa e l'Oriente).
- Dalal, Kurush F., Mayer, Ernst Emanuel, Raghavan, Raamesh Gowri, Mitra-Dalal, Rhea, Kale, Siddharth, and Shinde, Anurag (2017–18), "The Hippocampus of Kuḍā: A Mediterranean Motif which Validates the Identification of the Indo-Roman Port of Mandagora," *Journal of Indian Ocean Archaeology*, 13–14: 70–86, ISSN: 0974-1747.
- Dave, K. N. (1985), *Birds in Sanskrit Literature* (Delhi: Motilal Banarsidass), ISBN: 81-208-1842-3; repr. 2005.
- Del Hoyo, J., Collar, N., and Kirwan, G. M. (2020), "Indochinese Roller (*Coracias affinis*)," in J. del Hoyo, A. Elliott, J. Sargatal, D. A. Christie, and E. de Juana (eds.), *Birds of the World* (Ithaca, NY: Cornell Lab of Ornithology). DOI: [10.2173/bow.whrsha.01.2](https://doi.org/10.2173/bow.whrsha.01.2).
- Digital Dictionaries of South Asia (2024), "Digital Dictionaries of South Asia," University of Chicago, <https://dsal.uchicago.edu/dictionaries/>, (viewed 7 May 2024).
- Dutta, Sushil K., Nair, Manoj V., Mohapatra, Pratyush P., and Mahapatra, Ajay K. (2009), *Amphibians and Reptiles of Similipal Biosphere Reserve* (Nayapalli, Bhubaneswar: Regional Plant Resource Centre), ISBN: 8190092073.
- Dwivedi, Vrajavallabh, and Bahulkar, S. S. (1994) (eds.), *Vimalaprabhāṭīkā of Kalkin Śrīpuṇḍarīka on Śrīlaghukālacakratantrarāja by Śrīmañjuśrīyaśas* (Sarnath, Varanasi: Central Institute of Higher Tibetan Studies).
- Emmerick, R. E. (1980) (ed.), *The Siddhasāra of Ravigupta, Volume 1: The Sanskrit Text* (Wiesbaden: Franz Steiner Verlag GmbH), ISBN: 3515029044.
- Froese, R., and Pauly, D. (2024) (eds.), "FishBase, Version (02/2024)," <http://www.fishbase.org>, (viewed 7 May 2024).
- Habib, K. A., Kim, C. G., Oh, J., Neogi, A. K., and Lee, Y. H. (2017), *Aquatic Biodiversity of Sundarbans, Bangladesh* (2nd Edition, [Busan]: Korea Institute of Ocean Science and Technology), ISBN: 978-89-444-9056-9.
- Haldar, B. P., and Director, Zoological Survey of India (1995) (eds.), *Hugli Matla Estuary West Bengal* (Estuarine Ecosystem Series part 2; Calcutta: Zoological Survey of India).
- Hines, Ellen (2012), "Dugongs in Asia," in Ellen Marie Hines, John Elliott Reynolds, Lemuel V. Aragones, Antonio A. Mignucci-Giannoni, and Miriam Marmontel (eds.), *Sirenian Conservation: Issues and Strategies in Developing Countries* (Gainesville: University Press of Florida), 58–76, ISBN: 9780813037615.

- Holler, David (2009), "Welcome to www.tibetbirds.com/, " <http://www.tibetbirds.com/index.html>, (viewed 7 May 2024).
- Hornell, James (1909), "Report on the Anatomy of Placuna Placenta, With Notes on Its Distribution and Economic Uses," in id. (ed.), *Report to the Government of Baroda on the Marine Zoology of Okhamandal in Kattiawar, Part I* (London: Williams and Norgate), 43–98, ARK: [ark:/13960/t2h71076t](https://nbn-resolving.org/urn:ark:/13960/t2h71076t).
- Jákl, Jiří (2019), "Pangolin, Rāma, and the Garden in Laṅkā in the 9th Century CE: A Few Notes on a Symbolically Powerful "Anteater"," *Archipel*, 97: 69–86. doi: [10.4000/archipel.1030](https://doi.org/10.4000/archipel.1030).
- Jamspal, Lozang, and Wayman, Alex (1992) (eds.), *Abhidhānaviśvalocanam or Abhidhānamuktāvalī of Śrīdharasena* (Narita: Naritasan Shinshoji).
- Johnson, Helen M. (1937) (trans.), *Triṣaṣṭiśalākāpuruṣacaritra, or the Lives of Sixty-Three Illustrious Persons* (Baroda: Oriental Institute).
- Jolly, J. (1887) (ed.), *Mānava Dharma-śāstra, the Code of Manu* (London: Trübner & Co., Ludgate Hill), ARK: [ark:/13960/t79s6gk9g](https://nbn-resolving.org/urn:ark:/13960/t79s6gk9g).
- Kak, Ramchandra, and Shastri, Harabhatta (1941) (eds.), *Devi-rahasya with Pariśiṣṭas* (Srinagar: [s. p.]), ARK: [ark:/13960/t68397699](https://nbn-resolving.org/urn:ark:/13960/t68397699).
- Katz, Joshua T. (2002), "How the Mole and Mongoose Got Their Names: Sanskrit Ākhū- and Nakulā-," *Journal of the American Oriental Society*, 122/2: 296–310.
- Kosambi, D. D., and Gokhale, V. V. (1957) (eds.), *The Subhāṣitaratnaḥṣa Compiled by Vidyākara* (Cambridge, Massachusetts: Harvard University Press), ISBN: 9780674853805.
- Lee, Yong-Hyun (2004) (ed.), *The Niṣpannayogāvalī by Abhayākara Gupta. A New Critical Edition of the Sanskrit Text (Revised Edition)* (Seoul: Baegun Press).
- Lepage, Denis (2003–), "Avibase – The World Bird Database," <https://avibase.bsc-eoc.org/avibase.jsp>, (viewed 7 May 2024).
- Lienhard, Siegfried (1978), "On the Meaning and Use of the Word Indragopa," *Indologica Taurinensia*, VI: 177–88, ARK: [ark:/13960/s2gk0kbj0mg](https://nbn-resolving.org/urn:ark:/13960/s2gk0kbj0mg).
- Lokesh Chandra (2010) (ed.), *Sanskrit Manuscripts From Tibet: Vimalaprabhā Commentary on the Kālacakra-Tantra, Pañcarakṣā* (New Delhi: International Academy of Indian Culture and Aditya Prakashan), ISBN: 9788177420944.
- Madge, S. (2020), "Carrion Crow (*Corvus corone*)," in S. M. Billerman, B. K. Keeney, P. G. Rodewald, and T. S. Schulenberg (eds.), *Birds of the World* (Ithaca, NY: Cornell Lab of Ornithology). doi: [10.2173/bow.carcro1.01](https://doi.org/10.2173/bow.carcro1.01).
- Madge, S., Hansasuta, C., Pyle, P., Billerman, S. M., and Kirwan, G. M. (2024), "Large-billed Crow (*Corvus macrorhynchos*)," in B. K. Keeney, N. D. Sly, and M. G. Smith (eds.), *Birds of the World* (Ithaca, NY: Cornell Lab of Ornithology). doi: [10.2173/bow.labcro1.01.2](https://doi.org/10.2173/bow.labcro1.01.2).
- Mahīdharaśarman (1898–99) (ed.), *Atha Muhūrtacintāmaṇiḥ. Trtīyāvṛtti śuddhatāpūrvaka* (Bombay: Laxmi-Venkateshwar Press), ARK: [ark:/13960/t2s520r0t](https://nbn-resolving.org/urn:ark:/13960/t2s520r0t).

- Monier-Williams, Monier (1899), *A Sanskrit-English Dictionary. Etymologically and Philologically Arranged, with Special Reference to Cognate Indo-European Languages* (Oxford: Oxford University Press); repr. Delhi, 2011.
- n. a. (2007), “Śrīvajrabhairavamahāyogatantram,” *Dhīh: Journal of Rare Buddhist Texts Research Unit*, 43: 161–76.
- (2015), “Ḍākinīvajrapaṇjaraṭippaṇī,” *Dhīh: Journal of Rare Buddhist Texts Research*, 55: 121–34.
- Negī, Thākurasena (2018), “Śrīsarvabuddhasamāyogaḍākinījālasaṃvaranāmatantram,” *Dhīh: Journal of Rare Buddhist Texts Research Project*, 58: 141–201.
- Newman, John (1998), “Islam in the Kālacakra Tantra,” *Journal of the International Association of Buddhist Studies*, 21/2: 311–71. DOI: 10.2143/JIABS.21.2.3285920.
- Pinault, Georges-Jean (2014), “The ‘One Night-and-Day Observance’ of Lay Followers in Tocharian Buddhism,” *Tocharian and Indo-European Studies*, 15: 187–215, ISSN: 1012-9286.
- Praharaj, Gopal Chandra (1931–40), *Pūrṇacandra Oḍiā Bhāṣhākoṣha* (Oriya-English Dictionary) (Cuttack: Utkal Sahitya Press), https://www.lexilogos.com/english/oriya_dictionary.htm, (viewed 7 May 2024).
- Prater, S. H. (1965), *The Book of Indian Animals* (2nd, Bombay: Bombay Natural History Society and Prince of Wales Museum of Western India).
- Ratnachandrajī, Shatavdhani The Jaina Muni Shri (1927), *An Illustrated Ardha-Magadhi Dictionary, Literary, Philosophic & Scientific with Sanskrit, Gujrati, Hindi & English Equivalent References to the Texts & Copious Quotations* (Indore: Sardarmal Bhandari for the S. S. Jaina Conference).
- Rigg, Jonathan (1862), *A Dictionary of the Sunda Language of Java* (Batavia: Lange & Co.), ARK: [ark:/13960/t5n88df52](https://nbn-resolving.org/urn:nbn:nl:po:ark:/13960/t5n88df52).
- Riney, Thane (1951), “Relationships Between Birds and Deer,” *The Condor*, 53/4: 178–85. DOI: 10.2307/1364874.
- Roul, Subal Kumar, Das, Prakash Chandra, Manu, V. K., and Mini, K. G. (2022), “Diversity and Present Status of Croaker Fishery Along Odisha Coast,” *Marine Fisheries Information Service Technical & Extension Series*, 252: 7–13, <http://eprints.cmfri.org.in/16357/>, (viewed 7 May 2024).
- Sadhale, Nalini, and Nene, Y L (2005), “On Fish in Manasollasa (c. 1131 CE),” *Asian Agri-History*, 9/3: 177–99.
- Śāstri, Mahāmahopādhyāya Hara Prasad (1915), *A Catalogue of Palm-Leaf & Selected Paper MSS. Belonging to the Durbar Library, Nepal* (Calcutta: Baptist Mission Press), ARK: [ark:/13960/t1mh2rr8d](https://nbn-resolving.org/urn:nbn:nl:po:ark:/13960/t1mh2rr8d).
- Seelakhhndha Maha Thera, C. A. (1916) (ed.), *The Trikāṇḍaṣeṣha: A Collection of Sanskrit Nouns by Sri Purushottamadeva King of Kalinga, India. With Sārārtha Candrikā, a Commentary* (Bombay: Khemaraja Shrikrishnadāsa at the Shri Venkateshwara Press), ARK: [ark:/13960/s2h3gjtntqr](https://nbn-resolving.org/urn:nbn:nl:po:ark:/13960/s2h3gjtntqr).

- Sferra, Francesco (2008), "Sanskrit Manuscripts and Photographs of Sanskrit Manuscripts in Giuseppe Tucci's Collection," in id. (ed.), *Sanskrit Texts from Giuseppe Tucci's Collection Part I* (Roma: Istituto Italiano per l'Africa e l'Oriente), 15–78, <https://hdl.handle.net/11574/32042>.
- Sharma, P. V. (1968–69), "The Aṣṭāṅganighaṇṭu of Vāhata," *The Journal of Oriental Research, Madras*, XXXVIII: 1–52, i–xxiii.
- Shāstri, Mahopādhyāya Hara Prasad (1917), *A Descriptive Catalogue of Sanscrit Manuscripts in the Government Collection, Under the Care of the Asiatic Society of Bengal* (Calcutta: Baptist Mission Press), ARK: [ark:/13960/t25b5fq9c](https://nbn-resolving.org/urn:nbn:in:apsk:ark:/13960/t25b5fq9c).
- Sheshadri, K. G. (2017), "Animals and Animal Products as Reflected in Smṛti Texts," *Prācyā*, 9/1: 1–21.
- Shree Gulabkunverba Ayurvedic Society (1949) (ed.), *The Caraka Saṃhitā. Expounded by the Worshipful Ātrēya Punarvasu, Compiled by the Great Sage Agniveśa and Redacted by Caraka and Dridhabala* (Jamnagar: Shree Gulabkunverba Ayurvedic Society).
- Sugiki, Tsunehiko (2022) (ed.), *The Ocean of Heroes: A Critical Edition, Translation, and Analysis of the Ḍākārṇavatāntra, Chapter 15, and Jayasena's Meditation Manual* (Basel: MDPI). DOI: [10.3390/books978-3-0365-2031-5](https://doi.org/10.3390/books978-3-0365-2031-5).
- Sundaracharya, M. (1927) (trans.), *English Translation of the Sanskrit Text of Mriga-Pakshi-Sastra or Science of Animals and Birds (Zoology in India) by Hamsadeva, a Jain Author of 13th Century A. D.* (Kalahasti: M. Krishnaswamy), ARK: [ark:/13960/t57f1g93g](https://nbn-resolving.org/urn:nbn:in:apsk:ark:/13960/t57f1g93g).
- Susanto, Melinda (2023), "The Travelling Nautilus: Spaces of Circulation from the Indian Ocean to Britain," in Paul J. Smith and Florike Egmond (eds.), *Ichthyology in Context (1500–1880)* (Leiden: Brill), 495–522. DOI: [10.1163/9789004681187_018](https://doi.org/10.1163/9789004681187_018).
- Tanaka, Kimiaki (1987), *Mandara Ikonorojī* (Tokyo: Hirakawa Shuppansha), ISBN: 4892031224.
- (2018), *An Illustrated History of the Maṇḍala: From its Genesis to the Kālacakratāntra* (Somerville, MA: Wisdom Publications), ISBN: 9781614292784.
- Tomabechi, Toru (2018), "Quotations in Abhayākara Gupta's Āmnāyamañjarī Chapters 6–8 (Extracted from a Newly Available Sanskrit-Tibetan Bilingual Manuscript)," *Bulletin of the International Institute for Buddhist Studies*, 1: 77–94. DOI: [10.69319/biibs.1.0_77](https://doi.org/10.69319/biibs.1.0_77).
- Tucci, Giuseppe (1930), "Animadversiones Indicae," *Journal and Proceedings of The Asiatic Society of Bengal, New Series*, XXVI: 124–60.
- Turner, R. L. (1966), *A Comparative Dictionary of the Indo-Aryan Languages* (London: Oxford University Press), <https://dsal.uchicago.edu/dictionaries/soas/>, (viewed 7 Dec. 2024).
- Ui, Hakuju, Suzuki, Munetada, Kanakura, Yenshō, and Tōkan, Tada (1934), *A Complete Catalogue of the Tibetan Buddhist Canons (Bkaḥ-hgyur and Bstan-hgyur)* (Sendai: Tōhoku Imperial University).
- University of Madras (1924–36), *Tamil Lexicon* (Madras), <https://dsal.uchicago.edu/dictionaries/tamil-lex/>, (viewed 20 Dec. 2024).

- Upadhyaya, Jagannatha (1986) (ed.), *Vimalaprabhāṭikā of Kalkī Śrī Puṇḍarīka on Śrī Laghukālacakratantrarāja by Śrī Mañjuśrīyaśa, Volume 1* (Sarnath, Varanasi: Central Institute of Higher Tibetan Studies).
- Vajrācārya, Pūrṇaratna Sāhityaśāstriṇā (1965), *Nepālarājakīya Vīrapustakālayasthapustakānāṃ Brhatsūcīpatram. Yasyāyāṃ Bauddhaviṣayakaḥ saptamo bhāgaḥ, tasyāyāṃ prathamakhaṇḍaḥ* (Kāṭhamāḍaṃ: Vīrapustakālaya); 2021 VS.
- (1967), *Nepālarājakīya-Vīrapustakālayasthapustakānāṃ Brhatsūcīpatram. Yasyāyāṃ Bauddhaviṣayakaḥ saptamo bhāgaḥ, tasyāyāṃ dvitīyakhaṇḍaḥ* (Kāṭhamāḍaṃ: Vīrapustakālaya); 2023 VS.
- van der Geer, Alexandra (2008), *Animals in Stone: Indian Mammals Sculptured Through Time* (Leiden: Brill). doi: 10.1163/ej.9789004168190.i-462.
- Vidyābhūṣaṇa, Mahāmahopādhyāya Satis Chandra (1911) (ed.), *Amarakoṣaḥ. A Metrical Dictionary of the Sanskrit Language With Tibetan Version* (Calcutta: Baptist Mission Press), ARK: [ark:/13960/t5q81s64z](https://nbn-resolving.org/urn:nbn:in:cc0:13960/t5q81s64z).
- Vogel, Claus (1979), *Indian Lexicography* (Wiesbaden: Otto Harrassowitz), ISBN: 3447020105.
- Wang, Shu-Yan, Luo, Jing, Murphy, Robert W., Wu, Shi-Fang, Zhu, Chun-Ling, Gao, Yun, and Zhang, Ya-Ping (2013), “Origin of Chinese Goldfish and Sequential Loss of Genetic Diversity Accompanies New Breeds,” *PLoS ONE* 8/3: e59571. doi: 10.1371/journal.pone.0059571.
- White, David Gordon (1996), *The Alchemical Body: Siddha Traditions in Medieval India* (Chicago: University of Chicago Press).
- Wilkinson, R. J. (1901), *A Malay-English Dictionary. Part I. (Alif to Za)* (Singapore: Kelly & Walsh, Limited), ARK: [ark:/13960/t87h2n89w](https://nbn-resolving.org/urn:nbn:in:cc0:13960/t87h2n89w).
- Zimmermann, Francis (1987), *The Jungle and the Aroma of Meats: An Ecological Theme in Hindu Medicine* (Berkeley and Los Angeles: University of California Press), ISBN: 9780520059351.
- Zoetmulder, P. J., and Robson, S. O. (1982), *Old Javanese-English Dictionary*, 2 vols (’s-Gravenhage: Martinus Nijhoff), ISBN: 9789024761784.

