Bioforms and biophilia in Thai poetry and the extinction of experience

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The evolutionary biologist Dr. Edward O. Wilson coined the term 'biophilia' in a 1984 book of the same name. Biophilia (from Greek bios 'life' and philos 'dear, friendly') refers to the emotional response of people towards nature. It is a type of engagement that has, according to Wilson, a genetic base. The genetic code of the human organism predisposes one towards an emotional need to ally oneself to the natural world. A recently published book, The Biophilia Hypothesis (1993, Island Press/Shearwater Books), presents the evidence for the theory and supports several of the notions put forth in this paper.

Thai poetry, in particular classical poetry, is noted for its long catalogs of flora and fauna, arranged in stanzas governed by the rules of Thai prosody. My own explanation for this rhetorical device is that, for one, it enumerates a poet's encyclopedia of flowers, trees, fish, animals, and fruits—a compendium of biological knowledge of the time, just as oral poetry lists the lineage of a "not-to-be-forgotten" clan going back for tens of generations or folk tales memorialize culturally significant flora and fauna. But in poetic form and placement within a narrative text, the chain of bioforms is also a manifestation of biophilia. The recitation of the names, the music it creates, and the images of the lush and exotic interacting wildlife of the jungle, streams, and mountains that they evoke, induces a deep love of and need for nature and the desire to be in harmony with it. In purely literary terms, the catalogs, which might have roots in Chinese fu or the Indic literary tradition of describing garden and forest and their spiritual powers, advance the plot of the narrative and provide mood and setting for the actors in the tale.

This paper presents examples from Thai poetry to illustrate the biophilia hypothesis. Implications for the modern urban Thai biophile and the vanishing bioforms in Thailand will also be discussed. Ultimately, the extirpation of bioforms also entails the extermination of experience, an experience that informs the poet and his audience.

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MON-KHMER STUDIES 25:161-189
Introduction: The Modern Thai Biophile

An episode in a recent Thai short story, *The Capital*, deals with a young male day laborer who has recently come to find work in the capital city, Bangkok. It is the end of a work day when the story takes place. He is caught in a traffic jam inside a bus packed with tired and sweaty working class commuters. The young man is a villager from Northeastern Thailand or "Isan," the poorest and harshest region of the country and hence the most undeveloped, the most rural. The counterpart of the country boy, who finds himself on the same bus, is a young city clerk, most likely dressed in obligatory white shirt and tie. He too is a recent rural migrant to the city, an up-country transplant who needs money to support himself and his dreams, which include eventual marriage to his sweetheart back home. Both young men are seated in the back of the bus, within earshot of each other, as it inches its way along the rain-drenched streets of the megalopolis. Just as the heat, humidity, tedium, and fatigue seem about to overtake all of the passengers, the city clerk in particular, whose thoughts of discomfort we read, the sound of the Isan youth singing a folk song softly to himself is heard. Eyes closed, as if to blot out the pain of the present, he sings these poetic lines:

...ห่อต้มผักกวาง, ดองกรรไกรนิน
รุ่งอร่ามภูเขาแก้ว คืนขอนผาด
เหตุที่เห็นกินอยู่ริมท่าภูมิใจ
น้าแก้ว

มื่นห่อยามบ้าสาลัย
ลอยฝรั่งริมบึง
...ย่าก์คั่งเด็ดม้าดอกห่อต้มน้อย

ลีลาภูเขาภูเขาแก้ว
กั่งภูเขาภูเขาแก้ว

ย่าก์คั่งพลีณาถังปนแม่เล่าพู่ฟูฟู

พลีณาตายคั่งบินพายภูเขาภูเขาแก้ว
คล้ายบูมบูมบัวบาน

Sweet is the fragrance of the *krathin* blossom,
mixed with the fragrance of hay---
the *tap taw* mushrooms sprouting alongside the
*yaenga naang* vines.

I gaze at the eye-catching lotus blossoms
floating at the edge of the marsh.

I would like to pick a blossom to sniff its
fragrance.

To let it caress my hand,
But it is beyond my reach.

I would like to turn myself into a dragonfly
or a bee

Once transformed, I would fly to fondle
The lovely lotus blossom.

The song, full of the emotion of longing, is also a mini-catalog of bioforms: *krathin* and lotus blossoms, hay grasses, and *tap taw* mushrooms, *yaenga naang* vines, dragon flies and bees. A country song, sung by a country boy, the lyrics bespeak of a definite displaced "biophilia," a feeling of longing and fondness for the "friendliness" of the life forms of nature found only in the remote countryside far from congested Bangkok, coupled with a passionate desire for love. At the end

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2 *The Capital*, by Wanich Jarunggidan. A short story translated into English by M.R. Usnisa Sukhsvesti and published by Chulalongkorn Translation Center, Faculty of Arts, Chulalongkorn University, Bangkok, 1985. The volume begins with the original Thai and is translated into eight foreign languages.

3 The author attempts to write out the lyrics in the Isan dialect, which I, in turn, have transcribed from his Thai transcription into a phonemic one: hence some of the words are not Standard Thai spellings. I have bolded the words that form the rhyme pattern. I have also changed the original English translation somewhat in an attempt to pick up some details that were dropped.
of the song, tears can be seen collecting on the eyelashes of the Isan migrant decrying the absence of human love expressed through the language of symbols drawn from the flora and fauna familiar to an upcountry young man.

The author's intent is to recreate a feeling of loss and longing and the consequential alienation experienced by the newly urbanized man. At the same time, the hot and humid bus ride is presented as a metaphor for modern Bangkok. The ride encapsulates the cramped, dirty, and sweaty environment that the common person is forced to endure there.

One dimension of expressing the sense of loss is through an enumeration of biological forms, both plants and insects. The longing is for him, transformed and transported as dragonfly or bee, to be reunited with his love, the lotus or krathin blossoms. The song is full of meaning for both men crammed into the bus because they grew up with these life forms, and the affinity endures even within the fields of cement and asphalt in Bangkok.

The ultimate loss that gnaws at the pit of the stomach of the reader, however, lies in the future, when generations who have not grown up with contact with or access to nature will find less experiential meaning in such songs and poetry. The knowledge of some of these bioforms will endure only as names in an old song or as a catalog of trees, flowers, fishes, and elephants in classical poetry, such as the lines below from The Tales of Prince Sammutakote, parts of which date from the Auythaya period, some 300 hundred years ago. By juxtaposing the folk song and the following excerpt from the classic poem, we can see the continuity of Thai aesthetic experience over the centuries, between the fictional Thai prince and the Isan farm boy turned laborer. The excerpt below (stanzas 436-439) depicts Prince Sammutakote setting up camp in the forest in preparation for an elephant hunt. The experience of being alone in an environment of pairs of birds flying about in a forest of trees and perfume-enveloping flowers leads him to think of and long for his beautiful Surasuda, the woman he left behind waiting in the court with his parents. It is in these sections that the reader is presented with part of the catalogs of bioforms—in this particular stretch of stanzas, a list of trees and flowers. The key phrase that defines biophilia is in the fifth stanza: "...the wind blew...to invite His Majesty to wander about to delight in the delicate plants."

From each nest the husband
Flew out to compete,
To seek food for his wife
Swiftly diving and whirling about.

The prince saw these birds,
Felt alone, strove to endure,
But missed his heavenly wife
as loneliness pervaded.

Every kind of tree
filled the vast forest.
Pollen spread, unlocking
Heavenly, delightful perfumes.
Flowers budded in chains,
In clusters and bunches;
Branches grouped together
Like hands stretching out.

He gazed at the trees as the wind blew,
As though it came to admire,
To invite His Majesty to wander about
To delight in the delicate plants. [tree and flower catalog begins]

Du, pru, prayong, yom,
Sarapi, phikun, janjana—
Muang and monthan,
Flowers mixed with the kamyan.

Budding flowers ordered,
Pleasant sandalwood perfumes
Wondrous jambok,
Kannika mixed with kaew

Karakate, ket kaew,
Mali and maludi mixed,
Bunnak beside
Maliwan and wannawan.

The girth of the tree seemed
Like the waist of his beauty,
An encircling golden vine,
Like his Lady's arms embracing him.

Nangyaem, khatueng,
Dancing and pulling lamduan,
Jik, jaeng, maeng, mong-
Kut, khuy, khu khlay.

Trees stood high and low
As though dancing and turning.
Branches, when breezes blew,
Swayed as dragons lifted high.

Fragrant scents and aromas hung,
Gentle breezes blew,
Ready ripe mangoes exuded their aroma,
And the monnak tree flitted uneasily.
He finished admiring every tree
As evening drew near,
Suriya late in the day
Hiding behind Mount Meru.

And now with Suriya hidden,
"Surasuda, my beauty,
Now, looking before me
You're not there, only loneliness!

Both common sense and linguistic research tell us that comprehension of a "text," be it a popular song, a piece of classical Thai poetry, or a treatise on nature, is a matter of prior knowledge, experience, interest, and focused attention. The two young men on the bus share the common knowledge and experience of the countryside and closeness to nature. The reader of the short story will fully comprehend the experiences the writer is detailing only to the degree that he or she has known and experienced both urban and rural Thailand. Likewise, the student of Thai literature will better be able to enter the world of Prince Sammuthakote to the extent that he or she has had direct sensory contact with the natural world so carefully catalogued and thereby used to capture the complex emotion of biophilia. However, as the world of market economies moves in to dominate modern life, the rural experience and knowledge of bioforms recedes. That experience, in part "the biophilia tendency," however is preserved in classical Thai poetry to an uncanny degree for those decreasingly few who have the knowledge and experience to fully participate in the recreation of the "biostate".

As E.O. Wilson has commented recently, "just the nearness or even the depiction of natural environments is psychologically restorative."4 Thai poets have that very ability to evoke biophilia—the affiliation for nature—in their works. This is especially true of the earlier classical poets. But even modern Thai poets and songwriters continue the tradition. As bioforms disappear, as the tropical rainforests that once covered much of Southeast Asia are leveled by the saw and the bulldozer, so too will the poet's source of inspiration and material be lost. Bioforms and biophilia go hand in hand.

Disappearing Oral Catalogs of Southeast Asian Bioforms

On a global scale, knowledge of the names of things in nature is being lost at a rapid rate even in our lifetime as forests are clearcut and their human inhabitants displaced. Jared Diamond records the phenomenal encyclopedic memory of lifeforms among preliterate peoples in "New Guineans and Their Natural World."5

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While on the island of Kulumbangra in the Solomon Archipelago, I had two free days at the end of my fieldwork, and so I spent that time transcribing the knowledge of local birds possessed by one Kulumbangra villager, Teu Zinghite. For every one of Kulumbangra's eighty resident bird species, Teu dictated to me an account consisting of its name in the Kulumbangra language, its song, preferred habitat, abundance, size of the group in which it usually foraged, diet, nest construction, clutch size, breeding season, seasonal altitudinal movements, and frequency and group size for overwater dispersal...New Guineans have such detailed recollections not only for people but also for certain bird and animal species that they encountered only once. (p. 257)

Jared also points out that the knowledge of this jungle inhabitant extends largely to species that are of economic utility. Butterflies, for example, had little or no importance in the Kulumbangra economy, and they are not cataloged to the same extent as the birds, which are killed for meat and feathers and for the cash income derived from foreign export.

In the same general area in Southeast Asia we find the Temiar, mountain dwelling hunters and gatherers, who even more dramatically illustrate the biophilia hypothesis. Roseman captures Temiar affinity with nature in these words.6

Temians have a peculiarly intimate relationship to the land of the jungle, its flora and fauna, hills and rivers. They move through it daily, hunting, gathering, fishing and gardening, garnering cues as they travel from the sounds of various birds, insects, and animals that penetrate the dense jungle foliage. They cut each stalk of rice by hand, dig tubers, climb up into the trees to gather fruits. This closeness to the land comes out in the way they think about it. In the Temiar worldview, all entities—humans, other animals, plants, mountains—embody bounded souls that can be liberated as unbound spirit. The world resonates with life, with potentially animated being. (Roseman, p. 24)

According to Roseman, Temiar music—meaningfully patterned sounds and movements constructed with the pulsing of bamboo-tube percussion accompanying singing and swaying ceremonies—"sets the cosmos in motion, releasing spirits from their bounded forms so they can interact with humans." (p. 15) The feeling, the esthetic experience of "longing" that was so striking in the folksong of the Isan laborer on the Bangkok bus and the "loneliness" of Prince Sammutakote is not unlike that experienced by the Temiar.

The Temiar say that pulsating sounds of the Malaysian rainforest, such as calls of particular birds and insects, move with the beat of the heart, and thus move the listener to feel longing...These socially structured sounds, sonic icons of the heartbeat, move the heart to longing. (Roseman, p. 15)

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Out of Love, or For Money—Or from the Genes?

The episodes of Prince Sammutakote, the young laborer on the Bangkok bus, the Kulambangra villager, and the Temiar hunter-gatherer illustrate a spectrum of attitudes towards the natural environment. All exhibit extraordinary intimacy with nature. The sensual experience of the natural world moves Prince Sammutakote to long for his Lady Surasuda. The Thai worker is caught up in love and in the romance and reproductive aspects of nature also. His urges are mimetic; he wishes to transform himself, indeed transport himself, in such a way as to express his sexuality, to realize the truly sensual. The Kulambangran native, as we see him, is drawn in economic terms. He is the entrepreneur, the dealer in exotic birds who knows his avian inventory well. Excluded from his range of knowledge and interest are the uneconomic, such as (at that time) unmarketable butterflies, of which he has little classified information or interest. Finally, the Temiar forest dweller does not appear to see himself as all that separate from the rest of the forest world.

However, none of these instances of behavior that engages nature would seem to support the Wilsonian theory of a genetic-based biophilia to a very strong degree. As Jared suggests in his research, human attitudes towards nature are cultural constructs, behavioral systems peculiar to specific societies. Attitudes towards nature vary so much from people to people, even within a common culture, that it is difficult to generalize about a strong genetic base to humankind's response to bioforms. The genetic argument, it seems to me is weak but the cultural argument much stronger because it can be observed, discussed and compared across community lines.

Alternatives to the genetic argument, as put forth by Nabhan and St. Antoine are as follows:

1. Perhaps biophilia is not genetically determined but is a set of learned responses.

or

2. Biophilia could be a set of behavior based on a number of genes, for which any particular individual may have some but not all of the genes.

or

3. A child's learning environment greatly conditions the expression of any genetic basis for biophilia. Unless the appropriate environmental triggers are present in a certain cultural/environmental context, biophilia is unlikely to be fully expressed.

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7 See The New York Times, Sunday, June 5, 1994: "Isolated Papua New Guineans Fall Prey to Foreign Bulldozers: 'Last Rain Forest' Timber vs. a Culture" p. 1. This article points alarmingly to the recent rapid deforestation of Papua New Guinea. It also notes that the island series is home to what is perhaps the greatest diversity of bioforms anywhere, including the world's largest butterfly.

The third explanation is easiest to affirm with any certainty, as Nabhan and St. Antoine do. Pointing to Brown's article on Ifugao hunter-gatherer's 2,700 labeled categories of biota, the authors go on to note the large numbers of plants and animals mentioned in O'odham and Yaqui (U.S. Southwest Indian communities) stories, ceremonial orations, and songs.

The O'odam refer to at least 26 taxa of plants, 16 taxa of invertebrates, 13 taxa of reptiles, amphibians, and fish, 28 taxa of birds, and 20 taxa of mammals. Only 7 large native mammals, 3 large domesticated plants are represented among the 103 folk taxa featured in O'odham oral literature.

These numbers suggest that O'odham mythology is not merely focused on creatures that are conspicuous or have economic importance but extends to a wide range of local and extralocal biota. (p. 235)

These examples and arguments aside, what I wish to show now is that Thai classical poetry (court poetry) from the Ayuthaya period is both a continuation and a departure of the biophilia tendency in Southeast Asian culture. The Ayutthayan Thai (Siamese) poet was urbanized to a very high degree. Yet he or she was not all that divorced from the small-scale agriculturalist that formed the economic base of the 15th century Siamese world. The very large repertoire of biological knowledge possessed by the community of urban Thai poets working in this particular genre and time period was probably a close reflection of, indeed recording of, the knowledge of their rural cousins. Nabhan and St. Antoine note that this type of agriculturalist has maximum categorized information on biological life, reflected in the lengthy lists of the early Thai court poets.

The lexicons of small-scale farmer-forager societies tend to contain a greater number of binomial labels for plant taxa than do those of hunter-gatherer societies, suggesting that farmer-foragers give greater attention to the morphological and behavioral detail of local species, whether wild or cultivated. The depth of folk taxonomic knowledge in a cultural community is not, however, static; like biodiversity, it can be affected by social and environmental forces which change through time. (page 232)

Biophilia in the Poetry of the Early Bangkok Period

Bangkok was established in 1772, nineteen years after the sacking of Ayuthaya by the Burmese. Nineteen years later, the most famous poet of the Early Bangkok Period, the period of the Four Reigns, from Rama I to Rama IV, was Sunthorn Phu (1786-1855). His father was a native of Rayong, his mother came from Phetchaburi. His parents did not get along and separated early, his father retiring to the life of a monk in a monastery in his birthplace. Sunthorn Phu's childhood and adolescence was spent with his mother, who was a wet nurse to a

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princess in the Rear Palace. He was educated in Wat Sri Sudaram in Bangkok, where princes were schooled as well. When he was about twenty, he wrote his first story in verse, dedicated to a prince. By the time he was thirty-five, he had entered the royal service during the Second Reign. Essentially he was an urban and palace creature with country and common connections. His poetry reflects both the city-courtly life and the rural and vegetational. He wrote many travel poems, called nirat. Lines from his poetry illustrate the presence and continuity of biophilia in Thai poetry and the persistence of nature and poetry in the lives of the Thais. The following excerpt is taken from a translation of Nirat Phukhao Thong.10

When the moon rises, I see clusters of water chestnuts
And plenty of waterlilies.
I discern waterways on both sides.
We push with poles at front and stern.
Towards dawn, I see plants.

They look lovable and delicate, sending forth pollen,
The phyan lotuses growing lush beside the path,
Kam kung 11 in overlapping layers,
crowding the sàaràay beneath the water;

saay tig alternating with tabtao12
In clusters seen in rows to the left and right;
Water chestnuts, water lettuce, and lotus blossoms full
blown, scattered white like glistening stars.

Oh, if the girls come and see this,
They will descend to play in the meadows;
Those who have little boats will float and paddle about,
Pulling stems of phān lotuses and sàntàwaa plants13
How could I keep still before these flowers?

The poet has a very strong reaction when he witnesses the vegetation and flowers in the flooded rice fields; call it a demonstration of biophilia. Phya Anuman's explanation (in an essay on growing rice) was, "These are lines in admiration of fields in the wet season by Sunthoon Phùu, showing that the fields also have a distracting beauty if one has a poet's eye to see."14

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11 Lit. 'prawn's claws' Begonia obovoidea.
12 Lit. 'turtle's liver'. The 'turtle's liver mushroom' was mentioned in the song quoted earlier from The Capital.
13 sàntàwaa is Otelia alsimoides.
14 See fn. 10.
The Bioform Catalogs of Thai Classical Poetry: *The Tale of Prince Samuttakote*

One of the remarkable features of Thai classical poetry is the listing of names of flora and fauna. At least two of the older Thai classics, *Phra Law* and *The Tale of Prince Samuttakote*, are replete with this phenomenon. An Anonymous epic, *Phra Law* dates from the early Ayuthaya period, ca. 1448-1533. Cambodian influences were very strong during this time, and the language of *Phra Law* has been described as "a mixture of the language of Sukothai and the Khmerized Thai of Ayuthaya. Hudak\(^{15}\) (1993:xiii) remarks that during this period, "Cambodian kaap and Indic chan meters became the favorites of the court and the intelligentsia, the educated and the learned audiences for poetry."

The predilection to use catalogs of trees, flowers, fish, fowl, and animals (elephants in particular) as a literary device in both literary classics might well have been inherited from Khmer and Indic sources by the early Thai poet as well.

*The Tale of Prince Samuttakote* was begun during the reign of Prince Naray (1656-88), subsequent to *Phra Law*. It was enlarged by two later authors over a period of 150 years and completed in 1849. It is composed of 2221 stanzas, each of which has 2-4 lines of rhyming verse. Based on a Jataka tale, the more elaborate epic changes some of the content while retaining the original outline of the story. Some aspects are reminiscent of the Rama epic; it is a marriage contest that involves an elaborate elephant hunt (supposedly a reflection of Prince Naray's prowess), a marriage contest testing the ability of suitors to draw the iron bow, a battle with the losing suitors, marriage, separation of husband and wife, and their reunion. Very much in keeping with Indian traditions, the hero and heroine make visits to the Royal Gardens, the Himaphan Forest, and the Chattan Ponds, natural settings bursting with natural life that are inventoried in those portions of the poem. In the explanatory notes to his English translation of the poem, Hudak notes (fn. 142):

Within descriptive passages appear various kinds of catalogues. The simplest type involves the listing of flowers, trees, or the like in no particular order, although sound play helps to order the terms. A slightly more sophisticated list, as in this example, lists the terms in rhyming or alliterative sequences. No special patterns of rhyme or alliteration dominate the following catalogue. Since sound aesthetics are an important part of all catalogues, the listed items have been left in their Thai forms in this translation.

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TABLE 1. Catalog of Plant Life: Grasses, Trees, Flowers, Vines 16 (114 items)

 ngữ /kliang/
kliang - a species of grass

Bho tree - under which the Bhudda attained enlightenment

"He offered three leaves with blossoms"—probably a reference to three special leaves (samit) used in ceremonies, especially those involving the king. These leaves include leaves of the mango, leaves of the flame of the forest, Butea frondosa (Leguminosae), and the leaves of the takob, Flacourtia cataphracta (Flacourtiae)

ก้าแม /khaem/
khaem - a species of tall grass sometimes used as a fodder, Sorghum halapense (Gramineae)

diu (pradu) - a large, beautiful timber tree, Pterocarpus macrocarpus (Leguminosae)

ปรุ /pruu/
pru - a scented hardwood used for medicinal purposes, Alangium salvifolium

prayong - a flowering tree, Aglaia odorata

yom (moyom) - the star gooseberry, used in purification rituals, Phyllanthus distichus-euphobiaceae

sarapi (also surapi) - sweet scented flowers, Ochrocarpus siamensis

phikun - small, star shaped, sweet smelling flowers, Monosops elengi (Sapotaceae)

ก้านแคนมุ้ย /kanacannamuay/
kanjanamuang - golden mangoes

monthan - a large leafed tree with yellow flowers believed to grow in heaven

16 Transliterations of Thai names of biddana, their English definitions and Latin names are taken with very few modifications from the footnotes to Thomas Hudak's annotated translation, The Tale of Prince Samutitakote. On the line above his transcripted form, I have inserted the original Thai spelling and a phonetic transcription of a spelled pronunciation. My list of approximately 300 life forms, culled from the footnotes to the translated poem and rearranged into three categories (plants, birds, fish), does not include the elaborate catalog of elephant types that fill the scenes dealing with the elephant hunt and battles. Any errors in the transcriptions should be attributed to me.
kāmyaan /kamyaan/
kamyan - a tree yielding fragrant gum resin, *Styrax benzoides*
ジャンク /cambōk/
jambok - *Buchanania fastigiata*, *Amygdallicera stipulata*, or *Irvingia harmandii*
กาณิกา /kanikaa/
kaanika - a tree with sweet-smelling white flowers, *Nyctanthes arbor-tristis*
แกว /kēew/
kaew - a tree with fragrant white flowers, *Murraya paniculata*
กากรัก /kaarakèet/
karakate - the screwpine, *Pandanus furcatus* (*Pandaneae*)
เคท /kèet/
ket - palu, hardwood timber, *Mimusops hexandra*
มะลิ (มะลิ) /mālī/
mali - jasmine, *Jasminum sambac* (*Oleacea*)
มาลูก /maalúdīi/
maludi (maluli?) - a type of tree 17
บุนนาค /bunnāak/
bunnak - Indian rose chestnut, *Mesua ferra* (*Ternstromiaeae*)
มาลิวัลย์ /māliwan/
maliwan - jasmine
วานาوان /wanāwaan/
wannawan - hibiscus (?) *Hibiscus rosa-sinensis*
นางเยี่ม /naanyēem/
nangyaem - a shrub with fragrant flowers, literally the name means 'a woman slightly open', 'nang' 'woman' and 'yaem' 'slightly open', and therefore frequently appears as an image in erotic passages, *Cleredendron fragans*
ข่าทิ้ง /khàthīn/
khathung - a tree with reddish brown bark, *Calophyllum inophyllum* (*Guttiferae*)
ลำดวน /lamduan/; รามดวน /ramduan/
lamduan (or ramduan) - a tree with three-petaled strongly-scented flowers used as offerings to Buddhist monks, *Aphaerocoryne clavipes* (*Annonceae*)
จิก /cīk/
jik - a tree or shrub with leaves used medicinally, *Barringtonia spicata* (*Myrtaceae*)
แจง /cēng/
jaeng - a type of tree, *Nieuhhria decandra* (*Capparidaceae*)

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17 The use of the "?" means that Hudak is unsure; in many instances, he writes "a type of something" in the definition, perhaps as an indication of inexact or lost knowledge. For a fascinating account of language and knowledge decay, see Allan Pred's *Lost Worlds: Modernity and the Language of Everyday Life in Late Nineteenth-Century Stockholm*, 1990, Cambridge: Cambridge University Press.
มะง /maeng/
maeng (maenglak?) - sweet basil, *Ocimum basilicum* (*Labiatae*)
มะคู /mokhūt/
mongkhut - the mangosteen, *Garcinia mangostana*
ขุย /khuy/
khu - a kind of creper used as a red dye
ฉู่ /khliū/
khu - a small bush, *Pluchea indica* (*Compositae*)
ขาลู /khliūay/
khlay - a type of tree
มนณา /monnāak/
monnakh (nakkbut ?) - a moderate-sized tree with large white flowers, *Mesua ferra* (*Guttiferae*)
ราชกิจ /rāakkīūay/
rakklūay - bananas, *Gyrinocheilus koznokovi* (*Cyprinidae*)
พุitat /phūittaan/
phuttan - hibiscus, *Hibiscus mutabilis* (*Malvaceae*)
อะสอ /āsōok/
asok - the asoka tree, native to India, *Saraca indica* (*Leguminosae*)
กฤษณะ /krisanāa/
krisana - a large tree with fragrant resin often used as incense, *Aguilaria agallocha* (*Thymelaeaceae*)
กราวณ /krāwaan/
grawan - cardamoms, *Amomum xanthioides* (*Zingiberaceae*)
กระบู /kaarābuun, kaanbuun/
karabun (or kanbun) - a low-blooming annual, *Sphaeranthus indicus* (*Compositae*)
กู /kuun/
kun (kala ? ) - a tree with white flowers found on banks of streams, *Hydnocarpus castanea* (*Bixaceae*)
กระเหนิด /krān̄at/
kraniat - *Adhatoda vasica* Nees
กาม /kamkhūn/
kamkhun (kun?) - plant with clusters of yellow flowers, *Cassia fistula* (*Leguminosae*)
สุภาพสุข /sùphankaa/
suphanka - *Cochlospermum Cochlospermaceae*
เผ่า /phereekaa/
pheka - a tree with large pods, *Oxoxylum indicum* (*Begoniaceae*)
รร /rar/
rang - small tree upon which a lac insect feeds, *Pentacme siamensis* (*Dipterocarpaceae*)
รัก /rák/
รัก - a tree from which lacquer is obtained, *Melanorrhoea usitata* (Anacardiaceae)

สะครา /sàkrâːха/
sacra - a tree used for medicinal purposes

จาลิน /jâːlîn/
jaraling - *Averrhoa bilimbi*

กอก /kòk/
kok - umbrella plant, *Cyperus alternifolius*

รามาย /ramyay/
ramayai (lumyai ?) - *Nephelium longana*

ไพ /phay/
phai - type of tree used in building, *Adenanthera microsperma* (Leguminosae)

โพ /phoo/
pho - pipal tree, *Ficus religiosa* (Urticaceae)

ทุ่งตาน /tʰêespʰâːruʔ/
theptaru - a peppermint smelling pine, *Cinnamomum parthenoxyylon*

ลำปู /lamphuʔ/
lampu - tree with fruit for flavoring chutneys and curries, *Sonneratia caseolaris* *(Sonneratiaceae)*

ตองเตก /tɔŋtʰêk/
tongtaek - shrub, *Baliospermum axillare* (Euphorbiaceae)

ตาตุ่ม /tâtûm/
tatum - small tree with milky juice, *Excoecaria agallocha* (Euphorbiaceae)

ระก่ำ /rákam/
rakam - a palm, *Zallaca wallichiana* (Palmae)

ราชพรก /râčáphrik/
ratchaphrik - laburnum, golden shower, *Cassia agnes Brenan*

ชา năng /kâːnâːnâːŋ/
khanang - *Homalium tomentosum*; khanang also means 'arms of a lady'

รักสอร /ráksɔrɔʔn/
raksorn - shrub with double-petaled flowers, *Calotropis gigantea* *(Asclepiadaceae)*; raksorn also means 'love increases'

เลาแปนง /lêpnâŋŋ/
laepnang - woody climber, *Quisqualis densiflora* (Cembretaceae); laep [lep] nang also means 'fingernails of a lady'

ลำเชียก /lâmchìak/
lamjikak - species of screwpine, *Pandanus tectorius* (Pandanaceae)

เจน /càːn/
jan - sandalwood, *Syring myrtifolium*

มัลิกก้า /mâlikâa/
malika - double jasmine
kumari /kùmaarii/
kumari - an unidentified species of flower
phlap /phláp/
phlap - evergreen, Diospyros embroyopteris (Ebenaceae)
trakhop /trákhop/
trakhop - berry producing tree, Flacourtia cataphracta (Flacouriaceae)
khanun /khanùn/
khanun - jackfruit, Artocarpus integrifolia (Urticaceae)
chaamchun /chaamchun/
chaamchun - an unidentified species of fruit*
khwit /khwìt/
khwit - wood apple, Feronia elephantum (Rutaceae)
khwàat /khwàat/
khwàat - evergreen tree, Garcinia speciosa (Guttiferae)
mayhian /mayhìàin/
mayhian - Dipterocarpus intricatus (Dipterocarpaceae)
charahàn /charahàan/
charahàn - an unidentified species of tree
mahàat /mahàat/
mahàat - a large deciduous tree, Artocarpus lakoocha
màïphày /màïphày/
bamboo - Bambusa arundinaceae
bong /bòng/
bong - bamboo, Bambusa tulda
chànyaar /chànyaar/
chàngyang - an unidentified species of bamboo
ichàn /ichàn/
ichàn - blue climber, has prominent blue flowers and is found throughout the
tropics; Clitoria ternatea (Leguminosae)
sumali /sùmaalìi/
sumali - a flower, a collection of flowers
kaan /kaan/
kaan (kala) is dark blue-green like the anchan flower
konkonnii /konkonnii/
jongkonnii - a lotus that bears multiple white blossoms per stem
ubon /ubón/
ubon - a white lotus
nin /nin/
nin - a blue lotus
loohíttoo /loohíttoo/
lohito - a red lotus
Bioforms and biophilia in Thai poetry

بطما /patthamā?, pàtmā?/; also spelled ปตม, ปทุม
pathama - a lotus, Nelubrium speciosum
สวา /sawēet/
sawet - a white lotus
กมุต /kamút/
kamut - a long-stemmed white lotus
รัก /rák/
raek - Calotropis gigantea (Asclepiadaceae); rak also means 'to love'
สала /sala?/
sala - a short-stemmed palm, Zalacca wallichiana (Palmae); sala also means 'to relinquish, renounce'.
รักาม /rákam/
rakam - Calotropis gigantea (Asclepiadaceae); rakham also means 'sorrow, grief'
กราหม /krátum/
gratum - a species of evergreen, Excoecaria agalloch (Euphorbiaceae); a modification of the first syllable kra to kara produces the meaning 'hands' with the whole word meaning 'to beat the chest with the hands'
สุ้ม /tuum/
tum - bael fruit tree, Aegle marmelos (Rutaceae); onomatopoeia for the sound of beating
สอ /sók/
sok - the tree under which Buddha was born, Saraca indica (Leguminosae); sok also means 'sorrow'
พันลอก /phânlok/
phanlawk - a tree that probably produces a fire-red flower.
ส่าเยยут /sâyyût/
sayyut - fragrant climber, Desmos chinensis (Annonaceae); reversing the syllables, the meaning is 'to stop in late morning'
สุ้กอบรม /sûkkrom/
sukkrom - a tree with red fruit used for medicine; reversing these syllables produces a homonym krom 'to be melancholy' and suk 'happiness' which is negated in the Thai
สัทธอน /sâthôn/
sathorn - Millettia buteoides (Leguminosae); sathorn also means 'to recoil'
ทิงทอน /thîngthôn/
thingthon - Albezia procera; thing means 'to throw away'
โท /tôk/
rok - probably a woody sprawler, Terminalia alata (Combretaceae); a homonym means 'disease'
กันฟาย /kanphay/
kanphay - Afgeka sericea Carib; split into two syllables, the two syllables mean 'to protect against (kan) danger (phay)'
marum - horseradish tree, *Moringa oleifera* (*Moringaceae*); the second syllable means 'to gather, flock together'.

kamjat - *Zanthoxylum buddunga* (*Rutaceae*); kamjat also means 'to limit'

makawk - hog plum, wild olive, *Spondias pinnata* (*Anacardiaceae*); the second syllable, kawk, means 'to suck'

jak - nipa palm, *Nipa fruticans*; jak also means 'to be separated from'.

teng - a large forest tree, *Shorea obtusa* (*Dipterocarpaceae*); teng also refers to a type of Chinese scales with a horizontal bar.

mafaw - *Trewia nudiflora*; faw means 'to be withered or wilted'.

saba - elephant creeper, *Entada phaseoloides*; ba means 'to be crazy'

ramgap - *Mimoso pudica* (*Leguminosae*); ramngap means 'to curb or lessen'

nat - camphor plant, *Clumea balsamifera* (*Compositae*); a homonym, anat, means 'to be destitute'

wannam - creepers; wan has a homonym meaning 'day' and nam means 'water'

daphhit - phitsanat - *Mimoso sirissa*, used as an antidote against poisoning; dap means 'to extinguish and phit means 'poison'

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**TABLE 2. Birds (76 items)**

kungok - a peacock

kungan - a goose, *Cygnus*

kungon - white ibis, *Ibis milanocephala*

jip (warblers) /krâčip

jip (krajip) - warblers or wrens; jip also means 'to swallow a little at a time'

jap (krajap) /càap, kràcàap/

jap (krajap) - weaver bird, *Ploceus Baya*; jap also means 'to rob or steal'
 Klingklong - black necked mynah, *Gracupica nigricollis*

จ้า (já) /càw, kràcàw/

jaw (krajaw) - a type of heron; jaw also means 'to sit quietly'

กระท่ำ /kràsàa/

krasa - common heron, *Ardea cinerea*

รังnan /tànnaan/

rangnan - a species of bird

นางนวล /naàngnuan/

nangnuan - sea gull, sea terns, *Sterna sp.; nang also means 'lady' and nuan 'creamy skin'แก่น /kaänàam/

kanam - cormorant, *Phalacrocorax sp.; the kanam is a symbol of gluttony*

เป็ด /pètnáam/

petnam - whistling teal, *Dendrocygna javanica*. The repeated use of the word nam 'water' in the bird's name and in the description of their actions in the water helps to produce a rhyming effect in the Thai.

รัง /nìa/

งู - *Anhinga melanogaster (Phalacrocoracidae)*

เชา /khâw/

khaw - Malay spotted dove, *Turtur tigrinus*

เตน /tên/

ten - kingfisher, *Alcedinidae*

กัณย (กัณย) /krânay, tranay/

kranay - (or tranay) a small bird similar to the woodpecker

หัวขวาน /hùakhwāan/

huakhwan - scaly belly green woodpecker, *Gecinus vittatus eisenhoferi.*; huakhwan also means 'head of the axe'

ปล้า /plâaw/

plaw - turtle dove, *Aenopopelia tranquebarica humilis*

สาริกา /sàrîkâa/

sarika (or sari ?) - mynah, *Acriderthes tristis*

ฟริก /prîk/

prik - watercock, *Gallicrex cinereus*

แอน /tên/

aen - ashy swallow, *Artamus fuscus*; aen also means 'to bend'

ช้างแข /sàngseâa/

sangsaew - a common bird with black plumage, the king crow, *Buchanga atra*

ไม /phày/

phay - a species of bird
lang (kalang) /laŋ, kàlaŋ/  
- Siamese white-crested laughing thrush, *Garrulax diardi*

pling /plíŋ/  
- an unidentified species of bird

bawkhun /bàawkhûn/  
- a species of bird; *bawkhun* also can mean 'a young nobleman'

kangkhen /kaŋkhéen/  
- a species of magpie, *Copsychus saularis*; *kangkhen* also can mean 'shield'

khwaek /khwèék/  
- night heron, *Nycticorax nycticorax*

ilium /iilûm/  
- watercock, *Gallicrex cinera*

khum /khùm/  
- small quail

sày /sày/  
- an unidentified species of bird

huahan /huâhâan/  
- an unidentified species of bird

yung /yùŋ/  
- Burmese peafowl, *Pavo muticus*

sèek /sèek/  
- collared pygmy owlet, *Glaucidium brodiei*

khaw /khâw/  
- collared pygmy owlet, *Glaucidium brodiei*

khapsæ /khápkheē/  
- cotton teal goose, *Nettapus coromandelianus*

yang /yaŋ/  
- Indian pond heron, *Ardeola grayi*

kwak /kwàk/  
- Chinese white-breasted water rail, *Amaurornis phoenicurus chinensis*;  
  *kwak* also means 'shake, wave' and also represents the sound the bird makes

pharań /phâráń/  
- an unidentified species of bird

jak /càak/  
- a mythological bird said to wail at night when separated from its mate;  
  the name may also be translated as 'separated from'

topyung /tôpyung/  
- *Caprimulgidae*; the name can also mean 'to slap mosquitoes'

nokkajok /nôkacâok/  
- common sparrow, *Passer sp.*
Bioforms and biophilia in Thai poetry

ก่อนหนาย /khonhooy/
khonhooy - *Pelican ibis, Tantalus leucocephalus*

กูโระ /phuradook/
phuradok - an unidentified species of bird

โคกมา /khokmaa/
kokma - a species of bird

กอทพล้อง /kotphloeng/
kotphloeng - black-necked stork, *Xsnorhynchus asiaticus*

ช้างเหล็ก /chaanglek/
changlek - Indian crimson-breasted barbet, *Xantholaema haemacephala indica.*

The *changlek* bird makes sounds similar to its name, 'lek, lek'. The bird's name also means 'blacksmith', a person that makes similar sounds striking iron.

กราวาน /krawaan/
krawan - black racket-tailed magpie, *Crypsirhina varians*

กราวาน /kraweeen/18
krawen - black racket-tailed magpie, *Crypsirhina varians.*

กามิน /kamin/
khamin - babbler, *Mixornis rubicapella minor*

การิวิก /karawik/
karawik (nanwika?) - a melodious bird of fairyland whose songs entrance the spirits and deities of the forest. The Indian cuckoo is referred to by this name.

กงสู /krongca/
kronca (or konca) - sarus crane, *Grus antigone*

โคกิน /kookin/
kokin - cuckoo or coel, *Eudynamis malayana*

กระียน /karian/
karian - crane, *Grus sharpi*

ยางทอง /yaangthoon/
yangthon - little egret, *Egretta garzetta garzetta*

ก้าแพะ /khapkhae/
khapkhae - cotton teal goose, *Nettaurus coronandelianus*

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18 McFarland's *Thai-English Dictionary* records four variant spelling: /kraweeen, kaween, kraween, traween/ ข้าวเอน, ขาวเอน, ขาวเอน, กราวเอน. A close examination of different version of the poem would probably show many variant spellings—a reflection of dialect variation, such as the /krk/ and /ee/ in the Thai spelling in this instance, and the general absence of standardized spelling until modern times. It should also be borne in mind that the most authoritative published editions of the poem (1979, 1980: Krom Silapakorn) that Hudak based his translation on are not critical editions. Hudak states (p. XXVI): "As such, the third edition [1979] is not a critical edition since no critical apparatus has been used to solve textual problems. While spelling has been modernized in some cases, spelling errors still remain and frequently hinder comprehension."
khaektaw - a species of parrot; *khaektaw* could also mean 'guest comes'
langling - a small medium-sized palm, *Pinanga*; langling also means 'kinds of monkies'
thenghut - a kind of bird; thenghut also means 'to call out a message'
hongsa - a goose or swan
sûwa - a species of parrot
kûkût - jungle cock
kûnûm /kûnaan/
kun (kunala) - Malayan coel, *Eudynamis malayana*
jakhrak /sakhrakaak/
jakhrak - a mythological bird with a wailing sound at night when separated from its mate; the words also mean 'to be separated from'
phirap - a kind of dove, *Columbidae*; a rhyming syllable means 'to lament'
thenghut - a kind of bird; *theng* [thing] means 'to throw out' and *thut* means 'message'
khaawmong - an owl, *Glaucidium cuculoides*; mong means 'time' [daylight]
khaawkun - a type of owl; *kun* means 'to call out'
saek - a type of owl, *Tyto alba*; *saek* means 'to make clear'
khwawkhwan - a heron; *khwan* means 'ax'
rangnan - a species of bird; *nan* means 'a long time'
lang - Siamese white-crested laughing thrush, *Garrulax diardi*; *lang* means 'a sign of destiny, an omen'
nori - a parrot-like bird, *Loriidae*
khaektaw - a species of parrot, *Psittacidae alexandre*; (Psittacidae)
ตะกัน /kày fåa/
Kayfa - silver pheasant, *Euplocamus lineatus*; fa means 'sky, heaven'

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TABLE 3. *Fish* (94 items)

<table>
<thead>
<tr>
<th>Thai Word</th>
<th>English Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>กะรื่อ /kràhdojo/</td>
<td>giant carp, <em>Catlocarpio siamensis</em></td>
</tr>
<tr>
<td>กระหล่อ /krahèe/</td>
<td>edible water fish, <em>Puntius schwanefeldi</em></td>
</tr>
<tr>
<td>วัว /wua/</td>
<td>perhaps the seacow, <em>Halicore sp.</em></td>
</tr>
<tr>
<td>กิ้ม /krìm/</td>
<td>small fish similar to the fighting fish, <em>Ctenops vittatus</em></td>
</tr>
<tr>
<td>กวาง /kraay/</td>
<td>featherback, a freshwater fish, <em>Notopterus chitala</em> (Notoperidae)</td>
</tr>
<tr>
<td>แง่ /sawąay/</td>
<td></td>
</tr>
<tr>
<td>ปลา - <em>Pangasius fowleri</em> (<em>Pangasiidae</em>)</td>
<td></td>
</tr>
<tr>
<td>ศาบบน /khaånbian/</td>
<td></td>
</tr>
<tr>
<td>ปลา - freshwater catfish, <em>Belodontichthys dinema</em> (Siluridae)</td>
<td></td>
</tr>
<tr>
<td>ปลา /khaaw/</td>
<td>catfish, <em>Wallago attu</em></td>
</tr>
<tr>
<td>ปลา - <em>Trichopodus pectoralis</em> (<em>Anabantidae</em>)</td>
<td></td>
</tr>
<tr>
<td>ปลา /phoo/</td>
<td>freshwater fish, <em>Drepane punctatus</em>, <em>Tor stracheyi</em></td>
</tr>
<tr>
<td>ปลา /phruan/</td>
<td>freshwater fish, <em>Labeo pruol</em></td>
</tr>
<tr>
<td>เลยหมา /<em>khēemaakrooy</em>/</td>
<td>a fish with a black back</td>
</tr>
<tr>
<td>ปลา - <em>Amblyshynchichthys truncatus</em> (<em>Cyprinidae</em>)</td>
<td></td>
</tr>
<tr>
<td>ปลา /phraam/</td>
<td>a species of fish</td>
</tr>
<tr>
<td>ปลา /phram/</td>
<td></td>
</tr>
<tr>
<td>ปลา - an unidentified species of fish</td>
<td></td>
</tr>
<tr>
<td>ปลา /phluan/</td>
<td></td>
</tr>
<tr>
<td>ปลา - a carp, <em>Labeobarbus soro</em> (<em>Cyprinidae</em>)</td>
<td></td>
</tr>
</tbody>
</table>
phrom /phrom/
phrom - *Osteocheilus melanopleura* (Cyprinidae)
phliafleen /phliafleen/
pliafleen - an unidentified species of fish
thong /thong/
thong - *Parasilurus*
kanthong /kanthong/
kanthong - spear fish, *Istiohorus sp.* (*Istiohoridae*)
hiafleen /hiafleen/
hiafleen - an unidentified species of fish
kabok /kabok, krabok/
kabok - (krabok) sea mullet, *Mugil tade*
kabon /kabon/
kabon - ray or skate, *Raia*
thee /thee/
thee - *Pangasius larnaudil* (*Pangasiidae*)
chadoo /chadoo/
chadoo - serpent-headed fish, *Ophicephalus micropeltes* (*Ophicephalidae*)
kaemcham /kaemcham/
kaemcham - freshwater fish with bright red cheeks, *Puntius orphoides* (*Cyprinidae*); *kaem* means 'cheeks' and *cham* means 'to kiss'
maew /maew/
maew - *Anabas testudineus* (*Anabantidae*)
meew /meew/
meew - *Thryssa, Sepipinna, Lycothissa crocodilus*
linma /linma/
linma - *Cynoglossus borneensis*
mu /mu/
mu - *Acanthopsis choirorhynchus* (*Cobitidae*)
kotchara /kotchara/
kotchara - an unidentified species of fish
raahu /raahu/
raahu - *Mobula Mobulidae*; *raahu* is also the mythological monster of the moon that devours it during an eclipse
janthamet /janthamet/
janthamet - butter fish, *Stromateus*; *janthamet* means 'to devour the moon'
than /than/
than - an unidentified species of fish
wan /wan/
wan - a whale
tautm /taatùm/
tatum - small whale, *Puntius bulu* (*Cyprinidae*); the name *tatum* can also mean 'protruding eyes'
chon /chóon/
chon - loach, *Lepidocephalus hasselti*
kathin /káthin/
kathing - spring eel, *Mastacembelus armatus*
láaw /lãaw/
aw - *Luciosoma harmandi* (*Cyprinidae*)
máa /máa/
ma - a seahorse (?)
khlang /khlaŋ/
khlang - an unidentified species of fish
ka /kãa/
ka - a freshwater fish, *Morulius chrysophekadion*; also catfish, *Mystus micrancanthus*
héera /hêeraa/
hera - a fabulous marine creature
sui /suùy/
soy - *Danglia leprocheila* (*Cyprinidae*)
fakphrá /fákphráa/
fakphra - a bean, sword, a river fish, *Chelaoxygastroides* (*Cyprinidae*)
sáa /sáa/
sa - an unidentified species of fish
suea /suéa/
suea - *Toxotex jaculator*
suup /suùp/
sup - freshwater fish, *Hampala macrolepidota*
khia /khìa/
khuea - goby fish, *Apocryptes serpaster*
haŋkiw /hàŋkiw/
hanjkiw - species of saltwater fish, *Caranx mate* (*Carangidae*)
kùraw /kùraw/
kuraw - thread-thin fish, *Eleutheronema tetracytium*
khane /khanèek/
kane - an unidentified species of fish
kãt /kãt/
kot - catfish, *Mystus micrancanthus*
mùkham /mùkham/
mukham - *Boita cobitidae*
siw /siw/
siw - small edible fish, *Rasbora retrodorsalis* (Cyprinidae)

kradi /kràđiːi/
kradi - freshwater fish, *Trichopodus trichopterus*

kratrap /kràtráːp/
kratrap - freshwater fish, *Pristolepis fasciatus* (*Nandidae*)

chorn /chɔːn/
chorn - serpent-headed fish, *Mujrel*

chawat /chawát/
chawat - an unidentified species of fish

chaweeŋ /chaweeŋ/
chaweeŋ - an unidentified species of fish

thukang /thúkɑŋ/
thukang - species of saltwater fish

phuang /phùŋ/
phuang - *Gymnocheilus kaznakovi*

tàphian /tàphian/
tàphian - species of carp

paen /pɛən/
paen - *Leiognathus dussumieri*

paep /pəep/
paep - *Paralaubuca typus* (Cyprinidae)

jwat /jwat/
jwat - saltwater fish, *Johnius belengeri* (*Sciaenidae*)

lot /lɔt/
lot - *Mastacembelus circumcinctus* (Mastacembelidae)

morm /mɔɔm/
morm - an unidentified species of fish

chalam /chəam /chəam,
chalam - shark, *Scoliodon palasorrah*

kralumphus /kràlumphús/
kralumphus - shad, *Hilsa Aloha toli*

duk /dʊk/
duk - freshwater catfish, *Clarias batracus* (*Clariidae*)

daeng /dæŋ/
daeng - white catfish

khyaŋ /khyaŋ/
khyaŋ - catfish

uk /ùk/
uk - *Hemipimilodus borneensis*

lamphan /ləmphan/
amphan - an unidentified species of fish
กู่ /kùŋ/
kung - shrimp
ถึก /kàŋ/
kang - mantis shrimp
กุ้มภิษ /kùmáphin/
kumapin - long-nosed alligator
ณำ /màkön/
makorn - a mythical fish
สดำ /sàlàat/
salat - featherback, Notopterus notopterus
ปู /bùu/
bu - gobies, Glossogobius giuris (Gobiidae)
บ้า /bàa/
บ่า - Leptobarbus hoeveni (Cyprinidae)
สังขาว /sàŋkháwàat/
sangkhawat - Pangasius pangasius (Pangasiidae)
แมลง /máłeënphūu/
malaengphu - a type of mollusk
งำก /chanàak/
chanak - sawfish, Pristis perotteti
เทา /theéphaa/
thepa - freshwater catfish, Pangasius santiongsei (Pangasiidae)
ตรัพข /tràphâak/
trapak - Puntius daruphani
ช้อ /chádoō/
chado - serpent-headed fish, Ophicephalus micropeltes (Ophicephalidae)
กระโดง (กะโด่) /kràdooŋ, kàdooŋ/
kradong - an unidentified species of fish; kradong means 'the spine of a fish or ship mast'
กระก /karákɔt/
karakot - crab
กัลตั้ /kàtchàpàʔ/
katchapa - tortoise
จั่ว /cariw/
jariw - turtle
จาระ /caraaw/
jara - sea turtle

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Mon-Khmer Bioform Borrowing into Thai (Siamese)

In scanning the foregoing list of over 300 bioforms, it is safe to assume from word shapes alone that many are borrowings from Khmer. Perhaps the heavy borrowing should not come as a surprise, considering the fact that the form of the poem is Khmer in origin too. Even taking that into account, the fact remains that as the Thai moved out of South China and into Mon-Khmer areas of Southeast Asia, they encountered a new environment and civilization and borrowed new words along with the new Mon-Khmer culture. Indeed, the Thai writing system is a borrowing and adaptation of Khmer script.

To illustrate the degree of borrowing of terms for bioforms, examine the last list in this paper, the ninety-four fish. In her masterful study of Khmer elements in the formation of Thai (Siamese), Uraisi Varasarin lists a sampling of just nine Khmer names for fish that have been borrowed into Thai; all nine are found in the poem, Samutthakhõót Kham Chán. They are shown below, this time with their Khmer reflexes, as given by Uraisi Varasarin (1984:233-234). Of the remaining eighty-five fish named in the poem, easily the majority are Khmer script.

- krîm /krim/ from Khmer /kram/
  krîm - small fish similar to the fighting fish, Ctenops vittatus
- kray /kraaay/ from modern Khmer /kraay/
  kray - featherback, a freshwater fish, Notopterus chitala (Notopteridae)
- sawâay /sawâay/ from middle or modern Khmer /sفاای/
  sawâay - Pangasius fowleri (Pangasiidae)
- pruun /phruan/ from modern Khmer /pruul/
  pruun - freshwater fish, Labeo pruol
- khemâkroy /khêmaakroy/from Khmer /khmaw/ 'black', /kroy/ 'back'
  khemâkroy - a fish with a black back - Alosa kanagurta (Clupeidae)
- sâlah /salâat/ from modern Khmer /slaat/
  sâlah - feather back, Notopterus notopterus
- châdoo /chádoo/ from modern Khmer /cdaao/
  châdoo - serpent-headed fish, Ophicephalus micropeltes (Ophicephalidae)
- chalâam /châlam/ from modern Khmer /claam/
  (or chalâm) - shark, Scoliodon palasorrh
- taphian /tàphian/ from middle or modern Khmer /cpûn/
  taphian - species of carp - Puntius sp.

Conclusions

By now it is a commonplace to remark that rapid modernization in the tropical regions of the world has accelerated the rate of deforestation and the

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extirpation of plant and animal species. Southeast Asia is not an exception. What evolved over millennia as "vegetational civilizations" (food, clothing, housing, tools, derived largely from plant sources) are now competing to become industrial, urbanized societies.

This paper has attempted to show that there has been a remarkable continuity in the Thai attitude toward nature as reflected in Thai literature, from the earliest poetic narratives written in classical meters down to the poetic lines of simple folk songs. Because of the richness of Thai tropical nature—noted in the very earliest historical inscription attributed to King Ramkhaeng: "nay nām mii plaa; nay naa mii khāaw" [in the waters there are fishes; in the fields there is rice]—the Thai, regardless of their state in life, could not help but be confronted with tremendous diversity of life forms, that we, as outsiders, stand in awe of and label "exotic." So it is not surprising to see Nature's fecundity represented in Thai verbal arts.

What is remarkable is the degree of saturation of bioforms in the poetic arts. In the particular piece of classical Thai verse cited in this paper, there are roughly 300 named species of trees, flowers, plants, and fishes interwoven in the narrative text as "catalogs" of bioforms. One way of explaining their function is to employ the notion of biophilia, the emotional/aesthetic response of the poet towards nature. To be able to craft these gems of the verbal art, whether in the form of classical verse or a regional folk song, the poet has to be a biophile of extraordinary experiential knowledge, living close to the natural life forms he writes of so lyrically. The same holds true for his audience.

As the Thai tropics are denuded and the rural Thai move increasingly into urban centers, the experience of biophilia so exquisitely captured in classical verse and folksong is thereby reduced as a meaningful enterprise. Looking into the future, we are not only facing the extinction of bioforms but the extinction of experience—of actually seeing with one's own eyes the taptaw mushrooms sprouting along the edge of the yaanang vines, or a sea of lotus blossoms (the very symbol of Buddhist teaching) floating on a marsh, or to hear and see the elusive bright-yellow khamin 'babbler', the subject of one of the oldest and most beautiful Thai lullabies.

The time has come for the poet and the politician to sit down together to seriously discuss the ultimate result of loss of bioforms—the loss of the experience that is the very basis of our evolution, intimacy with nature and the feelings that it

20 Ramkhamhaeng Inscription No. 1 dates from 1283 A.D.
21 Not to mention the loss of whole languages. Mountain and forest dwellers comprise the greatest remaining diversity of languages and cultures, including indigenous knowledge of "forest products". For a discussion of this topic, see "The Death of Languages" in The Chronicle of Higher Education, April 20, 1994, page 48. According to the author, David Wheeler, "up to half of the worlds 6,000 languages will die out... in the next century." Wheeler also comments on the loss of verbal art: "Since many languages do not have a written form and have not been captured on linguists' tape recorders, countless forms of "verbal art" that stitch sound and meaning together are also being lost, including religious chants, rhyming verse, and songs of love and anger."
engenders and finds expression in the most fundamental of the human arts, namely the verbal arts. We desperately need to listen to the Southeast Asian poet-singer, be he or she Thai or Temiar.

Received: 18 April 1995.