CHAPTER SIX

LIZARDS AND RELATED FORMS

6.1 The lizard fauna of south central Seram

The order Crocodilia is represented by a single member of the family Crocodylidae. Five families of lizards (Sauria) occur: four species of geckos (Gekkonidae), three distinct species of the family Agamidae, one species of monitor lizard (Varanidae), and eleven species of skinks (Scincidae). A checklist of lizards and related forms reported for south central Seram is presented in table 9. Species identification compared with Nuaulu categories applied to actual specimens collected are set out in table 10.

6.2 Nuaulu categories applied to crocodiles and lizards

6.2.1 puha

The term is probably cognate with AM 'buaja'. Crocodiles (*Crocodylus porosus*) are more or less confined to the estuarine zones of the larger rivers of south central Seram, such as the Ruatan, Jala and Lahati, though occasionally they may be found in coastal waters. They are a large carnivorous inhabitant of both fresh and saltwater and may reach a length of nearly 6 m. The young feed on frogs and invertebrates while adults eat larger animals including man. Crocodiles have been reported by informants from other localities and appear to have been more widely distributed in the past. They are not actively hunted, although they may have been formerly and will still be killed if the opportunity arises. The crocodile is a totemic animal for the clans Matoke, Sopanani, Sonawe-aipura and Huni, though for none of these does it appear to be a primary totem. In the case of Matoke it is believed to have 'evolved' from one of the founders of the clan. It is clearly feared and gives its name to a type of taboo sign or scare charm (**wate puha**), which threatens the victim with a fate worse than (but including) death, by being eaten alive. There is some evidence to suggest that the fearsome reputation of the crocodile and the fact that its increasing inaccessibility prevents it being hunted make this an animal respected and tabooed by all Nuaulu. This is not made clear in any formal sense, but was the considered view of certain informants.

6.2.2 puo

A term applied to all monitor lizards (*Varanus indicus*), commonly found along the coast, particularly in coconut groves, and known in AM as 'sua-sua' (plate 12). At 1.5 m it is the largest lizard on the island. It differs from the others by its long slender forked tongue. It is a good swimmer and is often found in the vicinity of water. It has a distinctive coloration of numerous small yellow spots on a blackish or dark olive ground. In Nuaulu nomenclature this sexually dimorphic species is divided into two terminal categories: **puo inae (inae** = 'mother')(♀) and **puo pipane** (♂). There are no difficulties in identifying *Varanus* as **puo,** although youngsters sometimes find difficulty in sexing them.

Puo is a primary totem for the clan Matoke, on whose war shields it is sometimes depicted. It is believed to be descended from the dog of the original ritual head of this clan [Ellen 1993: table 6.2] As the clan Matoke is guardian of the village ritual house (**suane**), a **puo** motif is sometimes carved on the large drum attached to this structure. **Puo** is a secondary totem for the clans Penisa, Pia and Nepane-tomoien. Like **puha, puo** also gives its name to a type of scare charm.

Monitor meat is commonly eaten by clans other than Matoke, and after the reticulated python it is probably the most important reptile species appearing in Nuaulu diet. It is not normally actively hunted, but will be caught if located in coconut palms near the village. As a pest which will eat chickens and ducks, it is often more important to destroy it in the interests of pest control than to capture it for food. Although the Nuaulu appear to have no use themselves for the skin at the present time, this is always carefully removed as it can be later sold to dealers trading between Seram and Ambon, where it is used as an abrasive, an ingredient in Chinese medicines, and possibly also for other purposes.

6.2.3 isa

This is a term applied to the agamid lizard *Hydrosaurus amboinensis,* the sail-tailed lizard, so-called because the crest, which is very distinct on the back, becomes even higher on the base of the tail, especially in mature males. It may exceed a meter in length, of which two-thirds is tail. It is unusual among lizards in being almost entirely vegetarian. It is semi-aquatic, living on the banks of rivers and streams, and is regarded as a pest. It is occasionally eaten, but not especially sought after.

Like *Varanus, Hydrosaurus amboinensis* is a sexual dimorph and the category **isa** is divided by the Nuaulu into two terminal categories: **isa inae** = 'mother')(♀) and **isa pipane** (♂). **Pipane** refers to the serrated dorsal

TABLE 9 Checklist of lizards and related forms recorded for the Nuaulu area of south central Seram.

Species	Ecological zones 1	2	3	4	5	Nuaulu glosses
CROCODILIA						
Crocodylidae						
Crocodylus porosus estuarine crocodile	-	-	-	+	+	**puha**
SAURIA						
Gekkonidae - geckos						
Hemidactylus frenatus	-	-	+	-	-	**imasasae numa**
common house gekko *Gekko vittatus*	-	-	+	-	-	**imasasae ai ukune**
Agamidae - dragon lizards						
Calotes cristatellus	-	-	+	-	-	**kasa'un**
Draco lineatus amboinensis	-	-	+	-	-	**hohone**
Hydrosaurus amboinensis	-	-	+	+	-	**isa**
Varanidae - monitors						
Varanus indicus water monitor	-	-	+	+	-	**puo**
Scincidae - skinks						
Tiliqua gigas	-	-	+	-	-	**nopa inae**
Mabuya multifasciata many banded skink	-	-	+	-	-	**poso noha kunie**
Mabuya 'rudis'	-	-	+	-	-	**poso ai totu kopue poso noha metene**
Carlia fusca	-	-	+	-	-	**poso ai totu kopue**
Carlia sp. (prob. *fusca*)	-	-	+	-	-	**poso ai totu kopue**
Dasia smaragdina moluccarum	-	-	+	-	-	**poso kaimarane**

Emoia cyanura	-	-	+	+	-	**poso kaimarane**
Emoia kuekenthali notomoluccensis	-	-	+	-	-	**poso kaimarane**
Eugongylus rufescens	-	-	+	-	-	**nopa hanaie**

Key. Zone 1 = above 1000 m, principally montane rain forest; zone 2 = tropical lowland rain forest; zone 3 = secondary rain forest, garden and village areas; zone 4 = freshwater and swamp forest; zone 5 = marine and estuarine.

sail. The male is the larger of the two, and one specimen examined measured 75 cm from head to tail. **Isa** does not appear to be of any totemic or other sacred significance. Because it is less common than **puo** it is correspondingly more difficult to identify consistently and certainly to sex with any degree of accuracy. Because of its superficial similarity to *Varanus,* it is often described as 'a kind of **puo'.**

6.2.4 hohone

A term consistently applied to the flying lizard, *Draco lineatus amboinensis,* although it was also applied by three informants on one occasion to specimens of *Calotes cristatellus.* This may represent a generic usage or may be simply informant error in responses from young children. However, the abundant distribution of this unmistakable species in garden areas near the village would seem to make confusion unlikely.

Nuaulu recognise several different terminal varieties of flying lizard though - I think - with no particular consistency or categorical significance. Napwai isolated **hoho ai ukune. Ai** = 'tree, woody shrub'; **ukune** = 'end, top': **ai ukune** = 'treetop, tree branches, far forest', as in AM 'ujung kayu'; also **aikune** (= 'trunk, base, beginning': R.B.). In addition **hohone** are sometimes described as either **hoho metene (metene** = 'black, dark') or **hoho marae (marae** = 'blue-green'). Of these, only **hoho metene** was actually used with reference to collected specimens, and it seems that flying lizards which are not of a particularly dark hue are simply described as **hohone,** and lexically differentiated no further. **Hohone** is not normally differentiated into these various types, and it appears that the terms distinguish variant individuals, rather than terminal categories in the strict sense of the word.

TABLE 10 Species identifications compared with Nuaulu categories applied to 108 lizard specimens

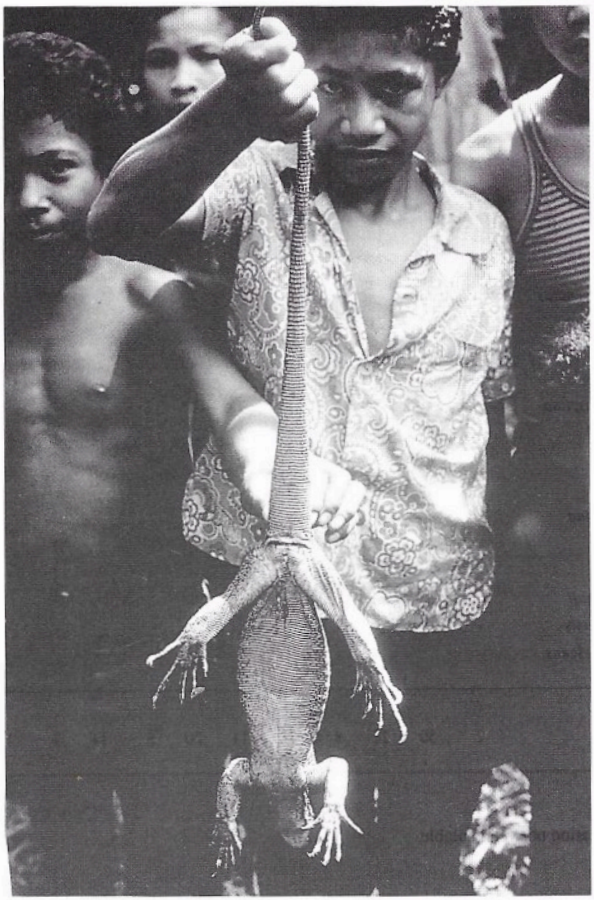
	imasasae ai ukuna	imasasae numa	kasa'un	hohone	puo	poso	poso noha kunie	poso ai totu kopue	poso kaimarane	poso kaimarane onate	nopa hanae	Number of informant responses	Number of specimens
Gekko vittatus	1	-	-	-	-	-	-	-	-	-	-	1	1
Hemidactylus frenatus	1	50	-	-	-	-	-	-	-	-	-	51	42
Calotes cristatellus	-	-	21	3	-	-	-	-	-	-	-	24	14
Draco lineatus	-	-	-	5	-	-	-	-	-	-	-	5	5
Varanus indicus	-	-	-	-	7	-	-	-	-	-	-	7	3
Mabuya multifasciata	-	-	-	-	-	7	17	3	-	-	-	27	21
Mabuya 'rudis'	-	-	-	-	-	2	2	-	-	-	-	4	4
Carlia fusca	-	-	-	-	-	2	1	3	-	-	-	6	5
Carlia sp *	-	-	-	-	-	-	-	2	-	-	-	2	2
Dasia smaragdina moluccarum	-	-	-	-	-	-	-	-	2	1	-	3	2
Emoia cyanura	-	-	-	-	-	-	-	-	9	1	-	10	7
Emoia kuekenthali notomoluccensis	-	-	-	-	-	-	-	-	-	-	-	0	1
Eugongylus rufescens	-	-	-	-	-	-	-	-	-	-	1	1	1
Totals	2	50	21	8	7	11	20	8	11	2	1	141	108

* Full identification not yet available

6.2.5 kasa'un (kasa uni)

All specimens of *Calotes cristatellus* were consistently allocated to this category (but see 16.2.4). This species is extremely common in garden areas and around villages. It is a great favourite among children when playing, the lizard being tied around the belly with a rattan lead. Although **kasa'un** is clearly grouped with **puo, isa** and **hohone** in terms of morphological features, Komisi says that it is distinguished from other animals by the

PLATE 12:Naunesi Sonawe-ainakahata with monitor lizard (**puo**) shortly after it had been caught in a coconut palm outside Rohua, 13 July 1975 (neg. 75-1-21).



length of its tail (which may be as much as three times the length of the body). Because of this it is said to be derived from **tekene** ('snakes'), although this is not evident from their classificatory position.

6.2.6 (n)imasasae

The term is applied to all geckos (Gekkonidae) known to the Nuaulu, and as might be expected, it is the pentadactyly and the suction pads on the digits which are the crucial distinctive features of the category. Geckos are also distinguished by the small number of eggs which they lay, compared with other lizards.

There are two terminal categories applied to geckos: **imasasae (ai) ukune** and **imasasae numa.**

6.2.6.1 imasasae (ai) ukune, imasasae ai atu

As has already been mentioned (6.4.2), **ai ukune** (but also **ai atu**) refers to 'tree top, tree branches, far forest'. In this context it distinguishes between species of geckos on the grounds of habitat, between forest and village. It is described by informants as being an habitue of gardens, banana and coconut palms.

Although only two specimens were subsequently collected and formally identified, it is clear that this term is more-or-less consistently applied to *Gekko vittatus,* despite the fact that one of the specimens so identified was *Hemidactylus frenatus.* On this occasion there appears to have been a genuine error on the part of the collector, partly due to the fact that the specimen did not seem to fit into **imasasae numa,** on account of its light coloration and mottling. This is a good example of a small sample of specimens and responses badly reflecting general classificatory practice.

Imasasae (ai) ukune is normally physically distinct from **imasasae numa** on account of its greater size (with an adult length of 25 cm) and colour. It is brown above and below with a distinct cream stripe along the middle of its back. This stripe bifurcates on the neck, the two branches running along the sides of the head to the eyes. The original tail has about four cream bands, but regenerated tails lack obvious pattern. The dorsal granules are interspersed with numerous small tubercles. It is the largest gecko on Seram.

Saniau says that there is only one 'natural kind', but did distinguish varieties on the basis of the predominant hue of the skin: **imasasae (ai) ukune metene, imasasae (ai) ukuna putie** and **imasasae (ai) ukune msinae** (= 'black', 'white', and 'red' respectively). One informant described it as being derived from **puo.**

6.2.6.2 imasasae numa

This gecko lays its eggs in the thatch of Nuaulu houses (**numa** = 'house'). Of the 50 responses elicited from informants for 41 specimens, all applied the term to *Hemidactylus frenatus,* the common South-East Asian house gecko. This has an adult length of 12.5 cm, is greyish or pinkish brown above with or without indistinct darker mottling. A dark-edged light streak passes on the sides of the head and through the eye. The skin on the back is soft and smooth without tubercles. The Nuaulu see no necessity to recognise sub-types. Since this is the most common gecko found in south central Seram, the term **imasasae** refers to this species when used in an unqualified way.

As for the Kalam [Bulmer et al, 1975: 299-300], so among the Nuaulu, familiarity with the house gecko tends to breed contempt. They are worthless little animals of slight ritual and no economic significance and yet are found everywhere in the village. Gecko-chasing is a common pastime among children who catch their tails and treat them as unfair game in play-hunting with bows and arrows, despite their small size. Yet geckos are curious creatures, and may often out-wit humans in their efforts to catch them. Their tails are easily detachable and may come in a variety of shapes and sizes; some are even forked. Komisi said that **imasasae numa** (and by extension probably all geckos) are derived from the eggs of **puo** (6.2.2), and card-sorting tests revealed a consistent association between these two categories although there is no morpho-syntactic indication of this relationship. Although not utilised totemically, **imasasae numa** has a particular significance for the clan Somori. If one is heard calling in a house where there is a sick person this is an indication that the spirit of a recently deceased member of the clan (**sionata**) has entered the body of the gecko and is guarding the patient. If the gecko is then caught it must in no way be harmed.

6.2.7 poso

This term is used in a maximum of four senses:

1. all Sauria
2. all Sauria that are either geckos or monitors
3. skinks (Scincidae)
4. skinks other than **nopa hanaie** and **nopa inae**

The sense indicated is generally clear from the context. Its broadest sense (1) is rarely encountered except in the artificial situation of an ethnographer asking abstract questions concerning the classification of animals. Its

second sense is more common and includes all skinks plus the Nuaulu categories **kasa'un** and **hohone.** Whether **nopa hanaie** and **nopa inae** should be included here or whether they are *sensu stricto* to be included in a more restricted sense (3) is variable. The narrowest sense (4) can almost certainly be accorded the status of a primary category, contrasting with **imasasae, kasa'un, hohone, puha, isa** and **puo.** Sub-divisions of the primary category are usually indicated morpho-syntactically by further differentiation (e.g. **poso noha kunie,** where **noha kunie** has no meaning in terms of skink classification except when preceded by **poso**). The different senses of the term **poso** are examined further below.

6.2.7.1 poso noha metene

No informants identified specimens as **poso noha metene** (**metene** = 'black, dark'), although it is possible (on the basis of informants' descriptions) that four unidentified specimens of *Mabuya 'rudis'* are to be placed in this category. On Seram this skink appears to be acting as a species distinct from *Mabuya multifasciata,* rather than simply as a sub-specific variant.

6.2.7.2 poso noha kunie

Of the 18 responses indicating this category (**kunie** = 'tumeric', *Fibraurea chloroleuca*), 17 referred to specimens of the many banded skink, *M. multifasciata.* Larger individuals are said by informants to be coprophagous. In general, they are regarded as dirty and polluting.

6.2.7.3 poso ai totu kopue

This name may be glossed 'rotting tree leaf skink' (**ai** = 'tree, wood'; **totue** = 'leaf'; **kopue** = 'rotting, decaying'). It is described by informants as living on decaying leaf litter and on middens. Its colouring and patterning provide an appropriate camouflage. Of eight specimens assigned to this category, each with a single identification, three were *M. multifasciata,* three *Carlia fusca* and two *Carlia sp.* As there are no other species of the genus *Carlia* known from Seram, it is possible that specimens of *Carlia sp.* will turn out to be *Carlia fusca.* This would confirm the most plausible view that the type characteristics of **poso ai totu kopue** are those of this latter species.

6.2.7.4 poso kaimarane

The term for this skink is sometimes simply rendered as **kaimarane** (**kaie** = 'bright', **marane** = cuscus, (chapter 2.2.1). It is said to be able to climb trees, unlike other members of the primary category **poso.**

Out of 13 responses for nine specimens, two indicated *Dasia smaragdina moluccarum,* and nine *Emoia cyanura.* An unidentified specimen of *E. kuekenthali notomoluccensis* is also probably assigned by the Nuaulu to this category. Nuaulu appear to sub-divide it still further (which would give it an intermediate status), but not consistently so. Two identifications indicated **poso kaimarane onate** (**onate** = 'large'), which appears to refer to *Dasia smaragdina moluccarum,* commonly found on and around coconut palms. Other members of this category seem to be simply referred to as **poso kaimarane.** One informant volunteered the term **poso kaimarane ikine** (**ikine** = 'small'), but this appears to be hardly ever used. Anyway, it is clear that it refers to *Emoia cyanura.* This is a distinctive little creature seen commonly on bushes, fallen trees and in the gardens, although it is found in particularly large numbers (almost to the exclusion of other lizards) in the great sago swamp forest on the Ruatan river. The species is sexually dimorphic, the female (though smaller) being the most easily recognisable with its bright blue luminous tail and yellow body with black horizontal banks. This sexual dimorphism is not recognised terminologically by the Nuaulu, although Retau'une did say that there were three morphological types of **poso kaimarane: onate,** presumably *Dasia smaragdina,* and what were clearly the two sex types of *E. cyanura.*

6.2.7.5 nopa(i) hana(i)e, nopa(i) ina(e)

These terms, rendered **nopa hanaie/inae** and **poso nopa hanaie/inae** with equal frequency, distinguish two terminal types (**hanaie** = 'male', **inae** = 'mother') of a covertly recognised intermediate category. On morpho-syntactic grounds, one might expect them to be members of a category labelled ***nopane,** but there is no evidence that this is current practice. **Nopa asu** means 'to hold a dog' and **nopa okum** 'to hold one's nose'. It may be that 'to grip, to hold' is indicated here, referring to the reputation this animal has for biting humans. **Nopa hanaie** is described as very large, with 'a stomach as big as a human fist'. Its head is said to be more like that of a snake than of a skink, and by this is presumably meant that the jaws are well-developed and stand out laterally. Its dorsal surface is described as having the coloration of **poso,** while its belly is white with yellow flanks. It is said to have a vicious bite which is capable of killing a man, and the recent case of Hunimora Nepane-tomoien was related to by Komisi as an instance of this. Its distinctive cry is known as the **kako nione**, and is said to be audible in the late afternoon. The identification of a single specimen indicates **nopa hanaie** as *Riopa (Eugongylus) rufescens.*

Nopa inae is unlikely to be the female of *R. rufescens* as the species shows no obvious sexual dimorphism. It is probably *Tiliqua gigas*, which is much larger, has darker limbs, a relatively heavier head, and some similarities in coloration. The skin of **nopa inae** is said to be similar to that of the death adder *Acanthophis antarcticus* (chapter 7.2.9), with pink and black vertical stripes, and with which it is sometimes confused. Though not regarded as poisonous and never having been known to lead to death, the bite can cause an infection.

These carrion-eating skinks are the only ones regarded by the Nuaulu as being edible.

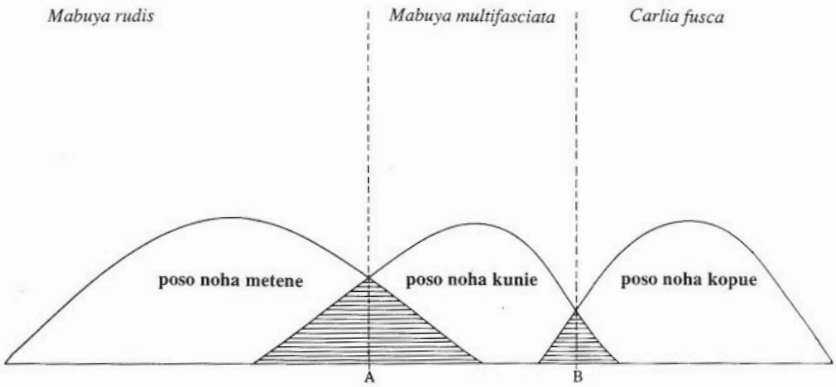
6.3 Variation in the identification and classification of lizards and related forms

In any estimate of the consistency of Nuaulu reptile identifications crocodiles must be ignored. They are seldom encountered and were not collected as specimens. Vivid folk descriptions and their occurrence in stories, however, suggests that most adult individuals would have little difficulty in recognising them for what they are, except perhaps in the case of immature specimens.

Lizards present a much more complex interpretative picture than either turtles or crocodiles. Specimens of *Gekko, Hemidactylus, Varanus, Draco, Calotes, Emoia, Dasia* and *Eugongylus* appear to be more or less consistently identified from what evidence is available (table 10). The reasons for this appear to be, at least in the first instance, largely a matter of their individual morphological distinctiveness. The sub-specific discriminations of *Varanus indicus* (**puo**) and *Hydrosaurus amboinensis* (**isa**) are due to sexual dimorphism and appear to be consistently made. The sub-specific discriminations of *Draco lineatus* (**hohone**) and *Gekko vittatus* (**imasasae (ai) ukune**) are probably made rather inconsistently and relate to distinctions in location, behaviour, and in certain cases, subtle colour differences. They are probably not regarded by the Nuaulu as being 'natural kinds' in the sense of being sexually self-reproducing.

In contrast, however, there is a rather special problem in determining the identity of certain skinks. Specimens of *Carlia fusca, Mabuya multifasciata* and *Mabuya 'rudis'* were all identified by informants in a relatively inconsistent way (table 10). If it is assumed that *Carlia sp.* is *C. fusca*, then the terms **poso noha metene, poso noha kunie** and **poso ai totu kopue** can be seen as being applied according to two relative criteria- degree of darkness and habitat- such that they overlap the three species *Mabuya 'rudis', M. multifasciata* and *Carlia fusca* as shown in figure 8. It should be noted that the

FIGURE 8 Relationship between Nuaulu categories for certain skinks and their phylogenetic content.



degree of overlap between **poso noha metene** and **poso noha kunie** (A) is greater than that between **poso noha kunie** and **poso ai totu kopue** (B). This reflects the phylogenetic distance between the corresponding biological species. Although they seem to indicate the three phylogenetic species involved in terms of their ideal type characteristics, the three indigenous categories appear to be sometimes applied in a relative sense, as in A is to B (labels) as *x* is to *y* (observed animal). What may be labelled **poso noha kunie** in contrast to another labelled **poso ai totu kopue,** may in contrast to a lighter coloured individual of *M. multifasciata* be spoken of as a **poso noha metene.** This kind of labelling, where relationships between observed animals is more important than equivalences between actual specimens and categories defined in terms of absolute distinctive features, occurs elsewhere in Nuaulu ethnozoology, but is nowhere better exemplified than with reference to skinks, and possibly frogs. In both cases the use of 'loose labels'[c.f. Hunn, 1976: 518] appears to be related to the social non-utility of the species. The remaining **poso** categories do not display this property and this is undoubtedly related to their morphological distinctiveness.

6.4 More inclusive categories for lizards

There is no single term for crocodiles and lizards, although they are certainly construed as being closely related forms.

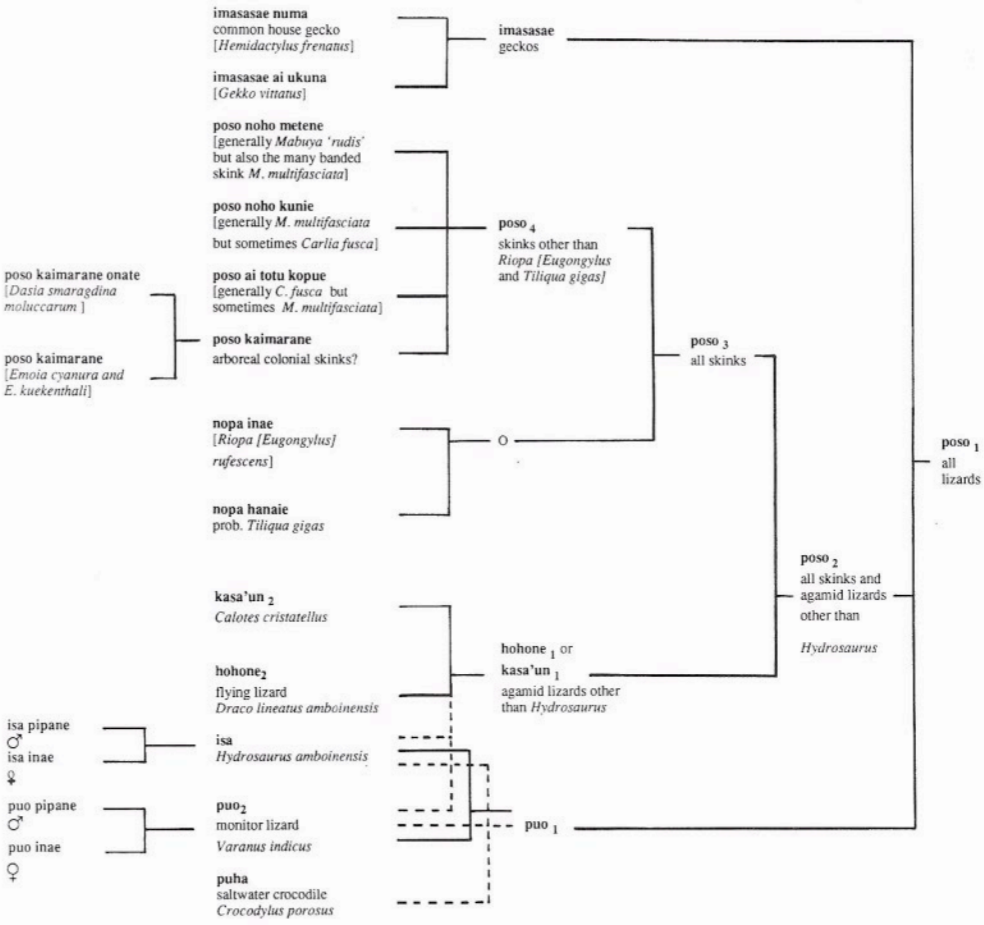


FIGURE 9 Nuaulu classification of lizards arranged as a taxonomy

Puha is sometimes spoken of as a type of **puo** and **puo** is sometimes spoken of as a type of **poso.** Although one might argue on syllogistic grounds that **puha** is therefore a type of **poso,** in my experience it is never classified as such by the Nuaulu and some informants emphatically denied the possibility. In the card-sorting test **puha** was grouped most frequently (in order of descending frequency) with **isa** (15), **puo** (12), **peku** (11), **poso** and **enu ikae** (9 each). It is clear that there is some ambiguity here between **puha** classified morphologically (as a saurian related to **poso, isa** and **puo**) and behaviourally (as an amphibious or aquatic form related to **enu ikae** and **peku**). Although, on balance, the 'morphological' classification appears to be the more important, even this is not completely clear. One informant justifying this schema commented 'all are **puo,** they live in water or sometimes enter water'. It is indeed the case that *Hydrosaurus* and some monitors are semi-amphibious.

The card sorting test revealed very similar patterns for **puo**$_2$ (1) and **isa**:

	puo$_2$	**isa**	**imasasae**	**poso**$_4$	**puha**	**kasa'un**$_2$
puo$_2$	-	23	20	18	12	5
isa	23	-	17	15	15	5

The strong association between **isa** and **puo** confirms what has already been said about their relationship. More unexpected in view of the above discussion is the relatively low degree of association with **puha,** though in this case crocodiles may be seen as aquatic in contrast to the more terrestrial monitors and sail-tail lizards. Whether an animal is aquatic, arboreal, terrestrial, or whatever, is clearly very much a question of relativity.

The patterns of association for **kasa'un** and **poso** are as follows:

	imasasae	**isa**	**puo**$_2$	**poso**$_4$	**puha**	**kasa'un**$_2$
kasa'un$_2$	8	5	5	5	1	-
poso$_4$	21	15	18	-	9	5

The low grouping of both categories with **puha** again suggests classificatory distancing on the grounds of terrestrial-aquatic distinctions. The strong grouping of **poso**$_4$ and **imasasae** is almost certainly because both are characteristically inhabitants of the village, as opposed to the forest. **Poso**$_4$ and **kasa'un**$_2$ are distanced classificatorily, and this must certainly be related to their morphological distinctiveness, the village-forest dichotomy and perhaps also the contrast between 'polluting' and 'clean'.

What is noticeable immediately from these groupings is that they cannot be arranged in terms of a neat taxonomy. A possible classification of Nuaulu crocodile and lizard categories arranged as a taxonomy is set out in

FIGURE 10 Types of variation in Nuaulu classification of lizards.

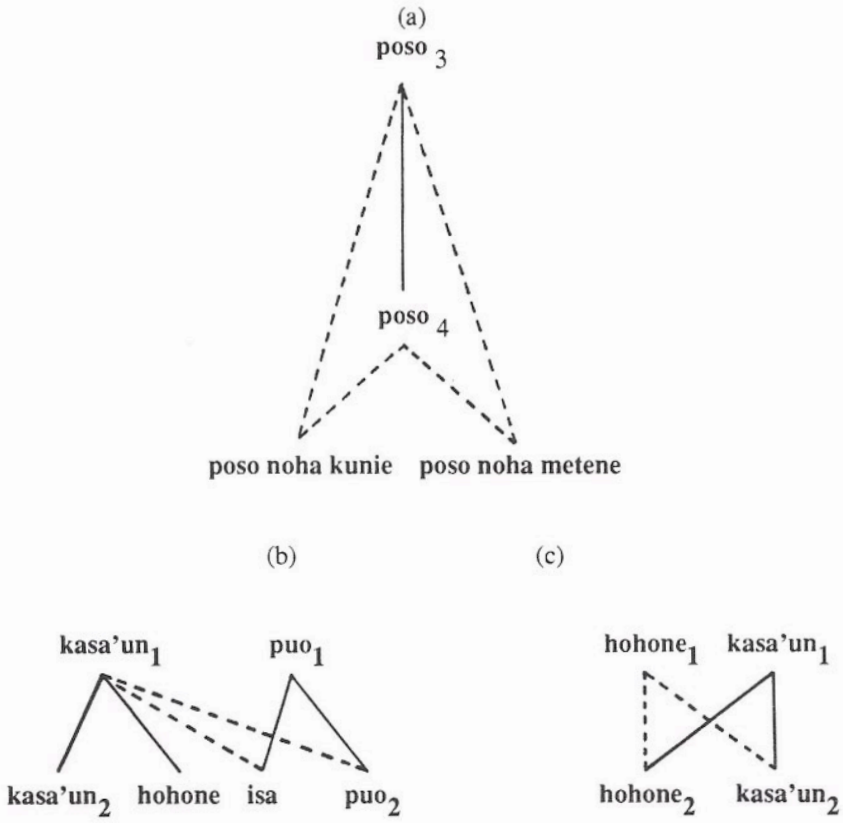


figure 9 based on the maximum number of classificatory 'levels' elicitable. This is inevitably no more that a convenient representational device and does not include all the possible connections suggested by the results of the card sorting test. No one informant volunteered such a schema, and in this sense it is that of an 'ideal speaker-hearer'. It is also important to see it as the *maximum* number of distinctions; it is unlikely to be elicited in this form from any hypothetical average informant. Some levels are commonly omitted and the degree to which they are relevant depends very much on context. For example, the terminal categories included in **poso**$_4$ may also be seen as

types of **poso**$_3$ without the intervention of **poso**$_4$ and the covert category (0). That is, the condition of transitivity is understood (figure 10a). Then there are cross-cutting classifications. For example, in response to the question 'what kinds of **kasa'un**$_1$ are there?', two informants listed **hohone**$_2$, **kasa'un**$_2$, **isa** and **puo**$_2$ although the last two are also commonly grouped together as **puo**$_1$ in contrast to **kasa'un**$_1$ (figure 10b). It is interesting to note that in the card-sorting test one fifth of all informants grouped **isa** and **puo**$_2$ with **kasa'un**$_2$. Finally, there is the variable substitution of terms in a class inclusive relationship (not indicated in figure 9). Thus, in one elicitory context it may be in order to speak of **kasa'un** as a type of **hohone,** and in another of **hohone** as a type of **kasa'un** (figure 10c). This usage is also reported for **isa/puo, nopa hanaie/nopa inae** and (for amphibians) **poro-poro/notu.** Nuaulu use of the conjunction **nai** to mean 'of the order of' (as in **isa nai puo**) appears to be only used when the terms are not normally related morpho-syntactically. We would therefore expect this to be a common usage in type C variation.