

Colour-Illustrated experience of an expedition for succulents in central, south and southwestern Madagascar

Harry Mays



Euphorbia stenoclada Itampolo W of Cap Ste Marie.

A colour-illustrated experience of an expedition to central, south & southwestern Madagascar.

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Preliminaries.

This 1993 expedition was organised by the Succulent Society of South Africa, but all the arrangements had to be made by a Madagascan tour company. Their arrangements turned out to be not impressive. Three small buses were ordered so that each member of the party would have one bench seat for himself and his personal effects such as cameras, notebook, water etc. In the event, only two small buses, which had negligible leg room, were provided and the party was augmented by two tour company guides, who knew nothing about succulents, one driver's wife (to cook on the road!) and child, one mechanic for each vehicle and a crate of scraggy chicken (to be cooked on the road!). Each bench

seat might have been suitable for two local people sitting side by side, but they were certainly unsuitable for two Europeans or Americans. The space was enough for three cheeks only. The fourth hung over the side of the bench seat! Cooking at midday on the road was unacceptable. People wanted to spend time seeing plants not sitting around while a meal was cooked. Most of the chickens had their lives extended to the end of the expedition, when the drivers sold them to a hotel.

The buses were obviously well used and apparently old. Tyres were worn down and cut and punctures had to be repaired en route. We did have two mechanics! Providing them was probably the most sensible thing the tour company did. Whilst travelling along a sandy road in the SW, a black line appeared in the sand - an oil leak from the bus in front in a sparsely inhabited area with only unmade roads! Examination quickly revealed that the oil filter had detached from the engine, figs. 2 & 3. The casing, filter and sealing ring were found some distance down the road covered in sand. It turned out that the thread holding the filter to the engine was non-existent. The missing thread had been replaced by a piece of wrapped-round tin cut from a can. The filter had then been forced on. Jolting and engine pressure had forced it off. Another piece of tin was cut from a can and wrapped around the nonexistent thread. This time only the filter body was forced on. The filter itself was not included as it was reasoned that without it there would be less pressure in the filter to force it off again. It did last to the end of the expedition.



Fig. 2. The filter, casing and sealing ring were retrieved.
Fig. 3. Repairs were carried out in the shade.



On another occasion, whilst travelling down one of the few tarmac roads, we unexpectedly came across road works. The road was generally in reasonable condition but in places patches were being renewed. Squares and oblongs of tarmac had been removed and filled with stone to within a few inches of the tarmac in preparation for the final layer. Some of these holes, which were staggered across the road, had large stones placed round them and there were mounds of stone at the road side. There were no signs of any kind to indicate that road works were in progress and none to indicate danger,

figs. 4 & 5. The driver of the first vehicle swerved at the last moment to miss a hole, but he succeeded in avoiding it only with the right wheels. The left fell into the hole at speed causing the bus to swerve left down an embankment. The passengers were thrown about, but suffered only bruises. The bus was not so fortunate. It broke a front spring at the front end. The repair consisted of the mechanics removing the spring then reattaching it with the unbroken end at the front. In this mode the bus was driven for the rest of the day. The spring was replaced that evening at Tuléar.

Somewhat less dramatic, but nevertheless also time consuming, on another occasion one of the buses became stuck in sand and extricating it proved difficult. In fact it was not until a large proportion of the residents of a nearby village arrived on the scene that enough advice and power became available to extricate the bus. By that time darkness was almost upon us and we had to camp for the night, making do with what we had with us for the evening meal and breakfast.

The country.

The island of Madagascar lies between 12° and 25° south, the southern tip just astride the Tropic of Capricorn. Mountain ranges run north-south down the centre and east side of the country. Rain decreases from east to west and north to south. Easterly winds from the Indian Ocean bring cyclonic rain most of the year onto the east side, about 3500mm to 5000mm (140"-200"), though the SE is drier. Rain in the SW falls in summer and averages about 340mm (14"). The coastal areas are, therefore, tropical. The highlands are temperate. The lowest recorded temperature is -8C at Ansirabe in the Central Highlands.

The main rock formations running from east to west are gneiss, then granit then pre-Canbrian, then alluvial.

Madagascar is a poor country struggling to feed its people. Maintenance of the infrastructure is limited - roads are in the main poor and dangerous. A number of reserves have been declared, but considerable areas of the natural vegetation have been replaced by crops and grazing for cattle and this process continues.

The main plant families of interest to succulent growers are: Bombacaceae (*Adansonia*), Passifloraceae (*Adenia*), Didieraceae (*Alluaudia*, *Alluaudiopsis*, *Decarya*, *Didiera*), Asphodelaceae (*Aloe*), Asclepiadaceae (*Ceropegia*, *Cynanchm*, *Folotsia*, *Stapelianthus*), Burseraceae (*Commiphora*), Crassulaceae (*Crassula*, *Kalanchoe*), Vitaceae (*Cyphostemma*), Euphorbiaceae



Fig. 4. Road works straddling the road without signs or attendants.

Fig. 5. The encounter with the road works and the excursion down the embankment broke the front left spring.



(*Euphorbia*), Apocynaceae (*Pachypodium*), Asteraceae (*Senecio*), Pedaliaceae (*Uncarina*) and Curcubitaceae (*Xerosicios*). These are found mainly in the central, western and southern parts of the island, where the natural vegetation is xerophytic, euphorbia-didieraceae forest in the south and SW, deciduous forest to the north on the western side and sclerophyllous forest in the centre. The east is dominated by luxurious subtropical rain forest along the coast, then to the west of this by mountain forest.

The expedition.

From Antanananarivo, our point of arrival by air, we went ESE to the Perinet-Analamozatra sub-tropical rain forest reserve, figs 6 - 9, page 4, then on to Taolanaro. Map page 40..In pockets of boggy ground, poor in nutrients, the pitcher plant *Nepenthes madagascariensis* is found, figs. 11 - 14, page 5.

Moving inland, rainfall decreases and vegetation gradually become less tall and less dense. In many places what looks like original vegetation is in fact secondary vegetation, due to

(Continued on page 6)



Figs. 6 to 9.

Perinet-Analamoatra
Reserve.
ESE of Antananarivo.

Note:
Day gecko.

Sifaka lemur leaping through
the trees.

Fig. 10.

Secondary vegetation with
prominent Palm triangular,
which is fire resistant.

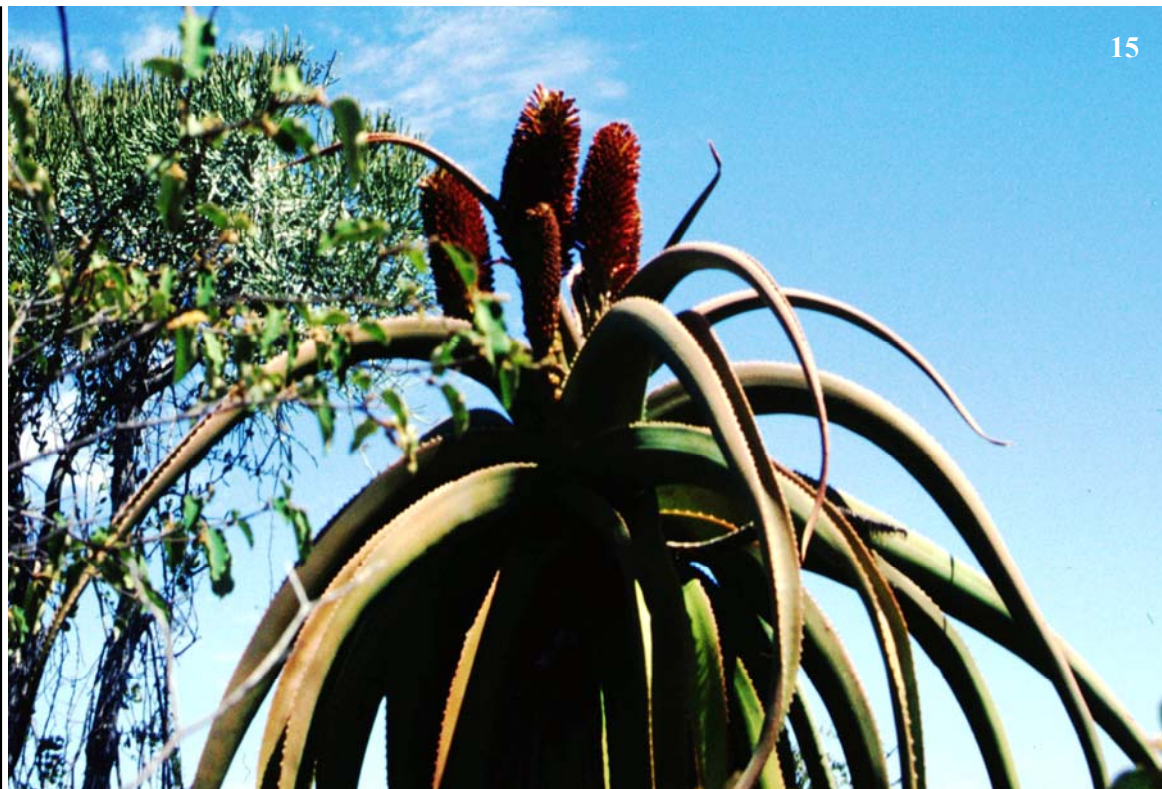


Figs 11 - 14. *Nepenthes madagascariensis*. Found on the eastern side of Madagascar. The genus is native to Indo Malaysia, far to the east. The yellow pitchers are the plant's "stomach", collecting and digesting insects for their nutrients, which are in short supply in the ground. Compared with the pitchers, the flowers are quite insignificant, fig. 12, centre white.

Fig. 15.
Aloe helenae
West of
Tolanaro.

Figs. 16.
Euphorbia
primulifolia.
SE of
Amboasary

Fig. 17.
Stapelianthus
insignis.
SE of
Amboasary



the activities of man. Fig. 10, page 4 shows secondary vegetation, which was originally undergrowth. *Palma triangular* is fire resistant.

Succulents and zerophytic plants are encountered to the west of Taolanaro. This area is the beginning of the euphorbia-didieraceae forest. We headed in the direction of Berenty. The first to be seen was *Aloe helenae*, fig. 15. It is an imposing plant to 4m high with a head of greatly recurved leaves, topped by cylindrical to claviform racemes. The flowers are dense and are reddish at the mouth.

Euphorbia primulifolia, *Stapelianthus insignis* and *Pachypodium rosulatum* grew in rocky areas SE of



Amboasary. The shape of *Pachypodium rosulatum* caudexes depend very much on where in the rocks they grow, figs 18 - 19, pages 7. From time to time these areas are burnt, but plants growing among rocks are protected from fire as there is little to burn. Geophytes, such as *Euphorbia primulifolia*, which grow in sandy soils where grasses etc grow, are protected from fire by their mainly underground mode of life. Flowers appear first followed by leaves, which are relatively short lived, fig. 16 page 6. Fig. 17, page 6 looks a little unsatisfactory for a *Stapelianthus insignis*, but the species grows in this area. Only the one was found.

Stolons are characteristic of *Kalanchoe synsepala*, figs 23 - 26, pages 8 & 9. They run for great distances across the ground until a suitable place is found for a rosette to develop and root. Leaves may be glabrous or short hairy; leaf edges may be prominently undulated or straight and mainly with, but sometimes without, red edges.



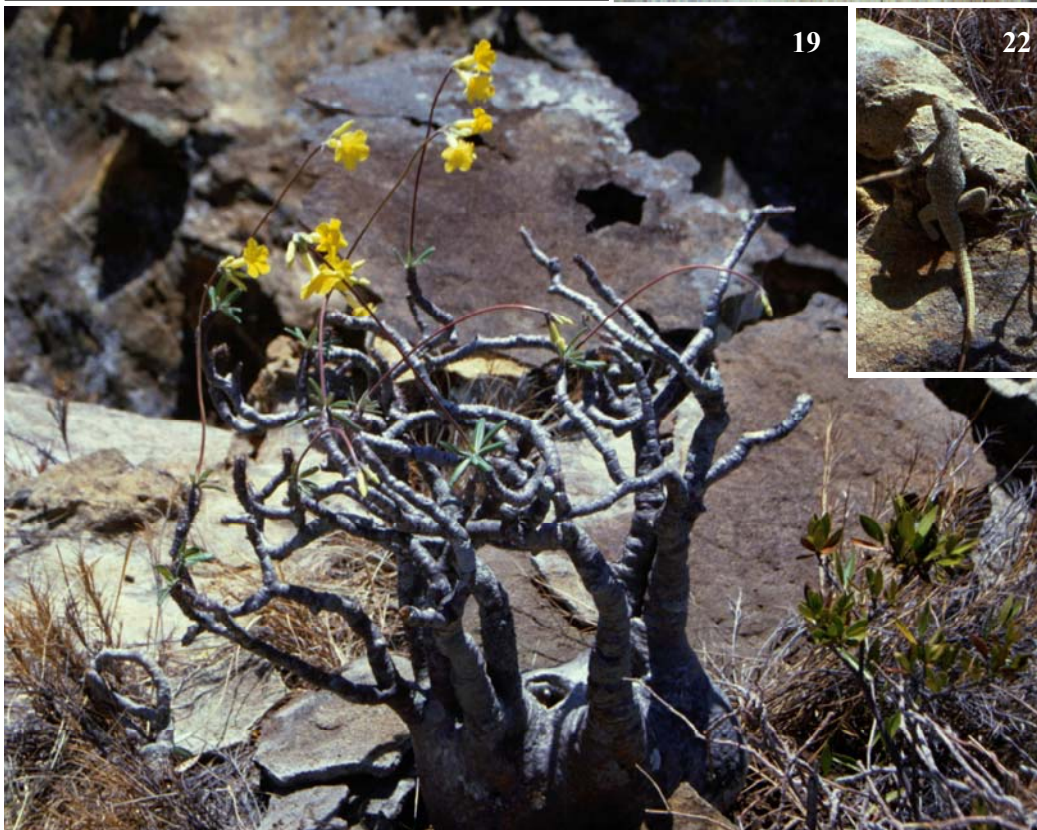
The species of *Cynachum* shown in fig. 27, page 9 is not certain. It is a branching shrub with succulent stems, without leaves at the time we saw it.

Pachypodium lameri is a tree to 6m tall, but the height of an individual plants is very much determined by where it grows. When growing in good sandy soil and surrounded by tall vegetation it becomes very tall, fig. 30, page 10, but when growing in pockets of soil among rocks its height is more modest, fig. 31 & 32. The trunk is covered with small, spiralling spines. At the top it branches dichotomously. Plants which branch lower down have had the growing point damaged at some time. Holes in trunks are the work of birds. Where several plants grow together they have all probably germinated from a batch of seeds which accumulated in one place, fig. 31. When the accumulation is among rocks the competition for limited resources is great, fig. 31 and “miniaturisation” takes place.

By comparison with *Pachypodium lameri*, *Pachypodium rosulatum* is small. It forms a low trunk from which thick tapering



Figs. 18 - 22. *Pachypodium rosulatum* v. *gracilius* and fauna SE of Amboasary.





23

Fig. 23. *Kalanchoe synsepala*. Leaves with short hairs and undulations on the leaf edges.
Fig. 24. *Kalanchoe synsepala*. Leaves with short hairs and straight leaf edges.



24



Figs. 25 - 26.
Kalanchoe synsepala
Glabrous leaves with hardly perceptible undulations (left) and strong undulations, but without red margins (right). The stolon ran for several metres before a rosette was formed.

Fig. 27.
Cynanchum species.

Fig. 28.
Locust from above.

Fig. 29.
From below.

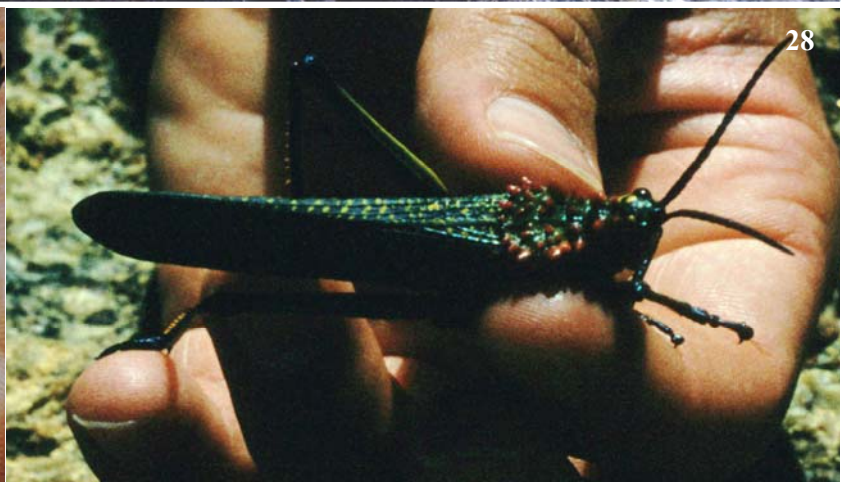




Fig. 30.
Pachypodium lameri
growing in good sandy soil.

Fig. 31.
A clump of *Pachypodium lameri*
growing among rock. Not only do
they have minimum substrate but
there is competition for available
resources.

Fig. 32.
Two clumps of *Pachypodium lameri*
growing in gravelly soil.



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(Continued from page 7)
branches develop. The bark is smooth.

Figures 33 and 34, show plants growing in rock fissures, which has a miniaturising effect on the plants. Away from the rocky areas larger plants are encountered.

Euphorbia plagiantha is a tree to 5m tall with fleshy cylindrical branches which are themselves much branched towards their tips, fig. 35. Another tree is *Euphorbia leucodendron* ssp. *leucodendron*, previously known as *Euphorbia alluadii*, which grows to 4m tall. Succulent cylindrical branches develop from the base and above and are densely produced. A specimen is also shown in figure 45, page 16.

Rocks are home to *Aloe deltoideodonta* and *Pachypodium rosulatum*, which can be found growing together or separately. *Aloe deltoideodonta* subfa.

variegata, the form illustrated in figs. 37 - 38, page 13 is listed as an invalid name and is included in *Aloe imalotensis* in the Illustrated Handbook of Succulent Plants - Monocotyledons. Note that *Aloe*

Figs. 33 and 34. *Pachypodium rosulatum* growing on rock.



34

deltoideodonta subfa. *variegata* was distributed by International Succulent Introductions in 1996 (ISI 96-26) as cuttings from a plant collected near Tolanaro. Our

(Continued on page 12)

photographs were taken farther to the southwest. The plant in fig. 40, page 14 is close to the description of *A. imalotensis* "...dull bluish-green tinged reddish, obscurely lineate." The plant in fig. 39, page 14 is *Aloe deltoideodonta* v. *deltoideodonta* coloured red because of exposure to the sun. All these plants were growing within a short walking distance of each other. It is not difficult to suggest that they are different forms of the same species, with that in fig. 40 being an intermediate (or hybrid?) between the other two forms.

Figs. 37 - 38, page 13, show two visually different pachypodiums growing quite close together. Fig. 38 shows the more typical *Pachypodium rosulatum* v. *rosulatum* in flower.

The rocks on which the plants grow are the refuges of natural vegetation in an area devoted to cattle grazing, fig. 41. On the rocks a number of lizards may be encountered, figs. 42 - 43.

In the vicinity of Tsihombe *Cyphostema laza* v. *parvifolium* was found growing among tall xerophytic plants. The trunks are impressive and equally impressive are the stout annual whip-like shoots which climb for long distances through the surrounding vegetation, figs. 44 - 45, page 16.

Senecio crassissimus, fig. 46, page
(Continued on page 15)



Fig. 35.

Euphorbia plagiantha
in front.

Euphorbia leucodendron
ssp *leucodendron*
behind.

Fig. 36.

Xerophyta dasyliroides
foreground.

A xerophytic pioneer
plant.





Figs. 37 - 38. *Pachypodium rosulatum* v. *rosulatum* and *Aloe deltoideodonta* variegata.
One *Pachypodium* shows no signs of flowering whilst the other is in full bloom.





Fig. 39. *Aloe deltoideodonta* var. *deltoideodonta*.
 Fig. 40. *Aloe deltoideodonta*. An intermediate between the variegated form and var. *deltoideodonta*.





Fig. 41. Zebu cattle are numerous throughout Madagascar. Much natural vegetation is cleared to produce grazing land, with erosion the consequence. Uncultivated outcrops of rock make up the remaining areas of natural habitat.

Figs. 42 - 43. Lizards are usually well camouflaged.



41 (Continued from page 12)

16 has a wide distribution in the southern part of Madagascar. It is a much-branched, low shrub with creeping to erect stems. The waxy leaves are flattened vertically. A narrow window can be traced along the upper edge.

Some of the wildlife is not for casual observation. It needs much concentration. Careful examination and the sifting of visual information is essential if it is to be seen. See fig. 47, page 16 for the stick insect.

The southwestern corner of

Madagascar is noted for its *Alluaudia* forests though they are much reduced in area because of deforestation for conversion to grazing land and cutting down of trees for charcoal production. Except for the foreground, fig. 48 might be thought to represent pristine forest, but this is not so. Trees have been removed for charcoal for considerable time and more are removed annually with the increase in population. In the foreground, next to the dirt road, a small area has been cleared of low growing secondary vegetation and cuttings of *Alluaudia* have been planted in an attempt to aid regeneration. The area covered was pathetically small, but at least someone recognised that steps must be taken to aid recovery of the forest. The prominent plants in the photograph are *Alluaudia procera*, the one in the foreground is a female in flower. Fig. 49, page 18 shows a close up of part of a stem with leaves, surrounded by a prospering *Opuntia ficus-indica*. *Alluaudia* produce many small leaves in response to moisture availability. They are suitably leathery for a hot dry climate, but are quickly lost when moisture is

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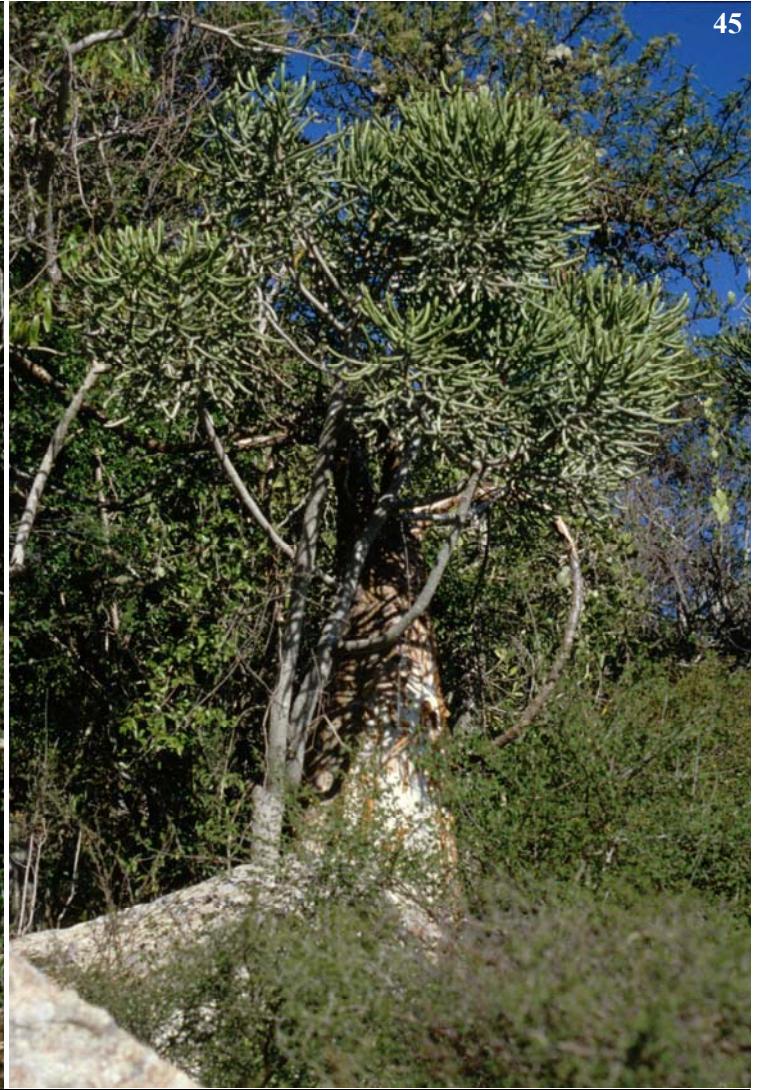


Fig. 44. *Cyphostema laza* v. *parvifolium*.

Fig. 45 *Euphorbia leucodendron* overshadowing a *Cyphostema laza* v. *parvifolium*

Fig. 46 *Senecio crassissimus*.

Fig. 47. Stick insect.



(Continued from page 15)

reduced. Fig. 51, page 18 shows another female, adjacent to the patch which has been planted with cuttings, showing clear signs of having been cut back, presumably for charcoal.

Alluaudia ascendens is the tallest of the Didieraceae species. It branches sparsely in a group from part way up the stem, fig. 50, page 18.

In coastal regions of the SW, *Rhipsalis baccifera*, fig. 52, page 19 is common and in certain circumstances can cover trees extensively. *Aloe divaricata* is also a widespread species in SW Madagascar and adjacent areas. It is intermediate in form between the tall tree aloes and the small shrubby species. Fig. 53, page 19 shows a specimen with fruits near Ampanihy. The

species is fast growing. The leaves are said to be harvested for medicinal purposes. *Kalanchoe laxifolia* v. *stipitate* is common in the central mountain ranges and seemingly a little beyond. It produces large heads of pendent red flower, fig. 54, page 19. *Kalanchoe beharensis*, widespread in the SW, is a tree to some 3m tall. It is capped by a lovely crown of partially folded leaves, glabrous or hairy, with undulating edges. The specimen in fig. 55, page 20 has very fine white hairs.

Delosperma bosseranum is found in disturbed soils in the south and SW. It is a small plant with fastigiate branches and a prominent tap root, figs. 58 - 60, page 21. The leaves may be smooth or hairy. It is quite similar to *Delosperma napiform*, which comes from Réunion. For those who like caudiciform plants, both these species can be grown with their tap-roots partially

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raised above the compost. Increase the amount above the compost at each repotting.

Kalanchoe delagoensis, often labelled *tubiflora*, is not always welcomed in glasshouses because of its prolific production of plantlets along the leaves, which root readily in surrounding pots. It is found in central and south Madagascar but, strangely, we encountered few specimens. It grows in a variety of habitats including sandy and rocky ground, fig. 61, page 21. The accompanying succulent is *Aloe deltoideodonta variegata*.

Euphorbia leucodendron ssp. *leucodendron* and *Euphorbia tirucalli* both grow in the SW and central areas and both have the same branching pattern, figs 62 - 63, page 22. The author readily acknowledges that the two were identified for him! Both are large trees. *E. tirucalli* is found in many of the warmer parts of the world as a result of introduction. For glasshouse culture, the cultivar *Euphorbia tirucalli* 'Sticks on Fire' is much more acceptable, as it is much slower growing and certainly attractive

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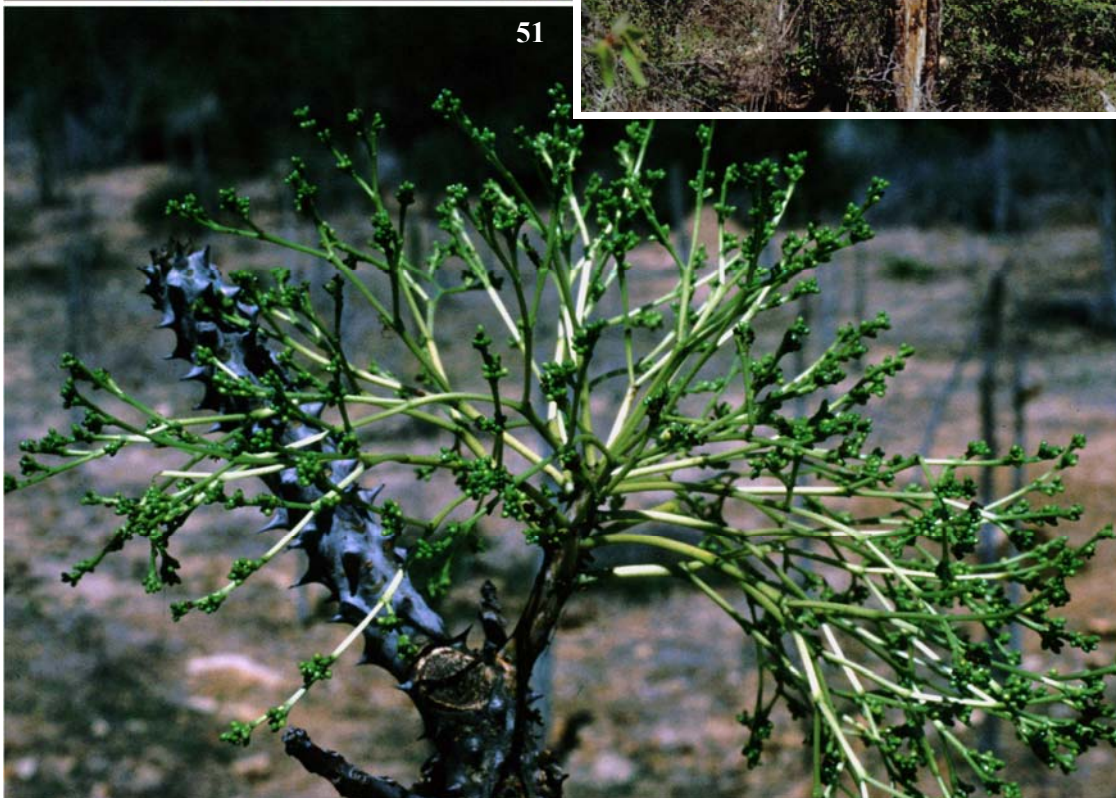
Fig. 48. *Alluaudia procera*
Plant in flower shows basal branching which will eventually die off.
The patch in the foreground has been cleared and planted with
Alluaudia cuttings.



49



50



51

Fig. 49.
*Alluaudia
procera*
Close up of
stem with
leaves.

Fig. 50.
*Alluaudia
ascendens*
Reputed to be the
tallest of all the
Didieraceae

Fig. 51.
*Alluaudia
procera*
Female plant
damaged by
cutting for
charcoal.

with its yellow/pink/red colour, the intensity of which is temperature and water dependent, the more of the former and the less of the latter, the greater the colour intensity.

The identification of the plant in fig. 65, page 22 is not certain, but it may be *Folotsia floribunda*. Unfortunately a close up of the flowers was not taken so no help is forthcoming from that direction. However the numerous flowers arranged along the stem in cymes is compatible with this species. On the other hand the stems are too uniform in arrangement because *Folotsia floribunda* is a climber with stems in various directions.

Stapelianthus decaryi is the most common Madagascan *Stapelianthus* species, all of which are found in the



semi-arid SW. It forms large clumps, one of which can be seen in fig. 64, page 22.

When walking around in the heat, it is nice to sit down from time to time. However, it pays to be careful where you sit, particularly if you are not familiar with scorpions, fig. 66, page 23. Some are relatively harmless, but other are not so. Chameleons, fig. 70, on the other hand, present no danger and provide time for photography as they execute slow motion aerobatics.

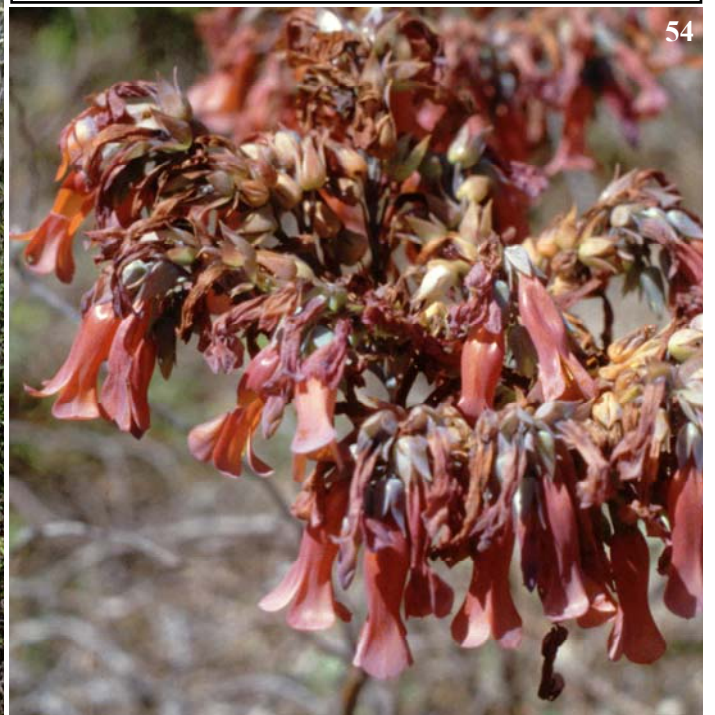
Some *Cynachum* species have underground storage



Fig. 52. *Rhipsalis baccifera*.

Fig. 53. *Aloe divaricata*

Fig. 54. *Kalanchoe laxifolia* v. *stiptata*



organs. If you look carefully at fig. 71, page 23, you may just be able to discern the outline of a caudex just level with the ground, from which two stems with thickened nodes emerge. The species is uncertain.

In the Isalo mountains *Pachypodium rosulatum* v. *gracilis* grows on rocks, figs. 67 - 69, page 23. Plants appear to be sitting precariously on top of rock, but they are, of course, anchored in cracks and crevices. The “grass”, which grows on the rocks, is *Coleochloa setifera* (Cyperaceae), fig 67, which is important for the colonisation of rocks. It quickly forms large mats which allow humus to accumulate. These mats do sit on the rock. They can be peeled back from their edges!

In the Isalo Mountains *Aloe imalotensis*, figs. 101-102 page 35, grows on the sandstone rocks. The leaves are glaucous and reddish brown in full sun. This colour may no be exhibited in the glasshouse because of inadequate sun light.

The return west from the Isalo was through

Fig. 55. *Kalanchoe beharensis*.

Fig. 56. *Aloe helenae*.

Fig. 57. A lizard caught sunning at the edge of a bush.

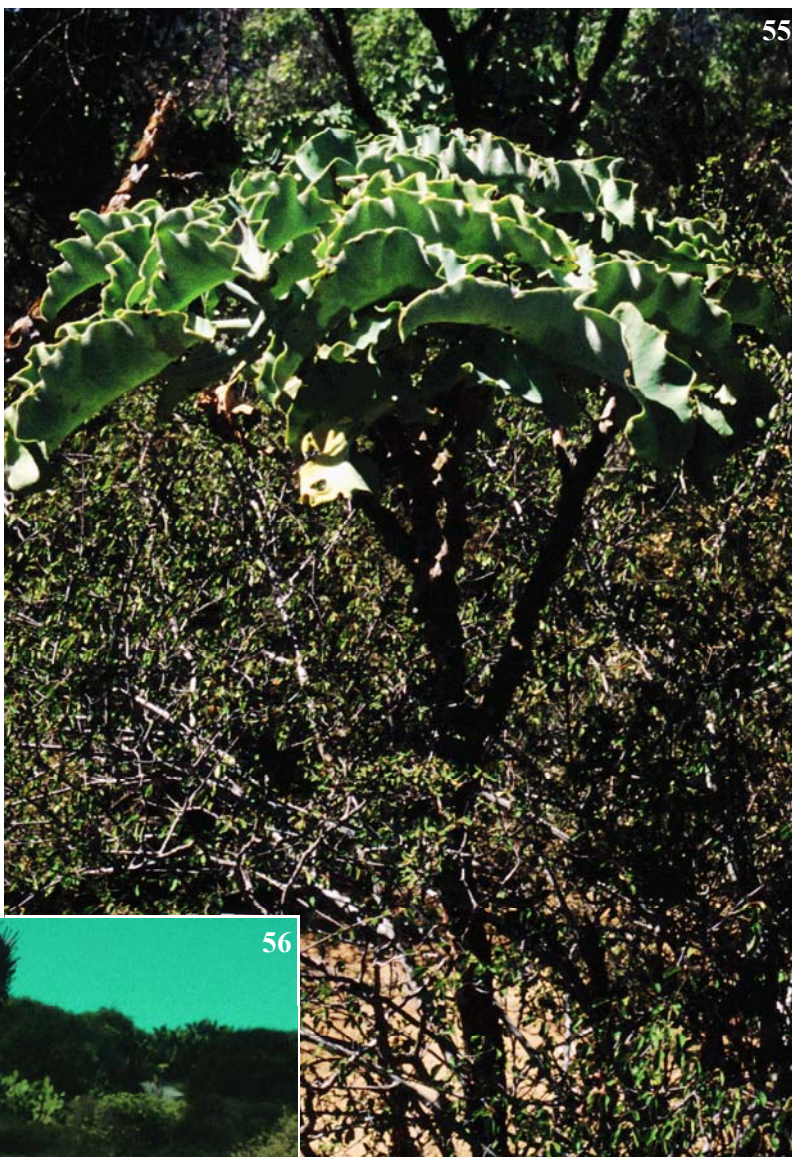




Fig. 58. *Delosperma bosseranum* with flower and fruits. Fig. 59. *Delosperma bosseranum* showing tap-root.
Fig. 60 *Delosperma bosseranum* fruits.



61 deciduous forest, the nature of which can be seen from fig. 72, page 24. Just a few kilometres south, the forest was being cleared by burning to provide grazing for cattle, figs 73 and 74, pages 24 and 25. Rainfall in this area averages only about 36cm a year, but sudden thunderstorms on sparse grassland cause rapid run off and erosion, fig. 75, page 25. In other areas the forest has been cleared for the production of sisal. Extensive areas were devoted to *Agave sisalana*, fig. 76 page 26. The production of sisal is in competition with man-made fibres, which are oil dependent. When oil prices are high sisal tends to flourish, when low to be depressed.

Aloe buchlohii, fig. 77, page 26 is a stemless species with long, narrow leaves. It is reported to grow on bare gneiss rock, but the plant in the photograph is surrounded by grasses and shrubs.

Alluaudia procera, fig. 78, page 26, in this area were in flower. A difference of some kilometres can make a difference in the development of plants. Compare with the photographs on page 18.

(Continued on page 27)

Fig. 61.
Kalanchoe delagoensis
& *Aloe deltoideodonta variegata*.

Fig. 62.

Euphorbia leucodendron ssp.
leucodendron.

Fig. 63.

Euphorbia tirucalli

Fig. 64.

Stapelianthus decaryi.

Fig. 65.

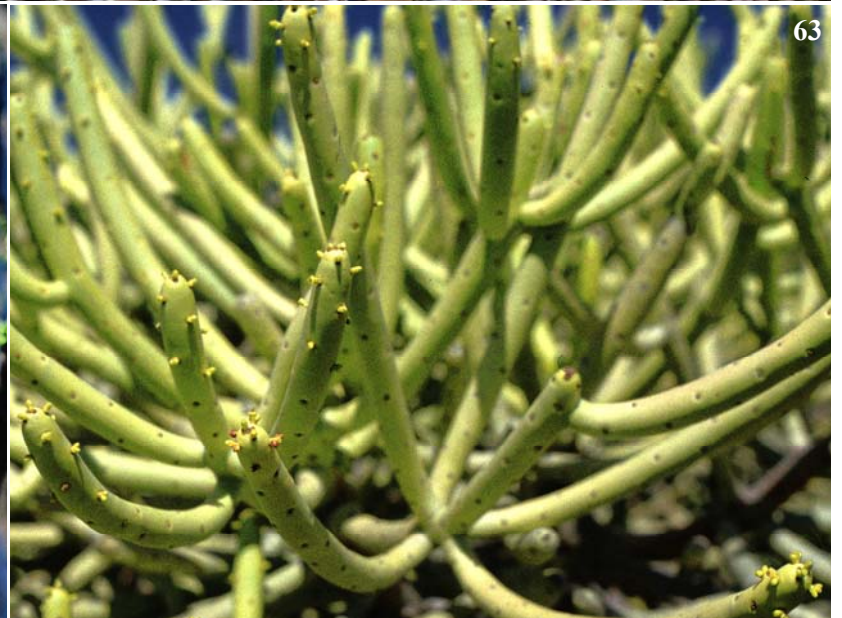
Folotsia floribunda.



62



65



63



64



66

Fig. 66. Scorpion emerging from its rocky shelter.

Fig. 71. *Cynanchum* species.

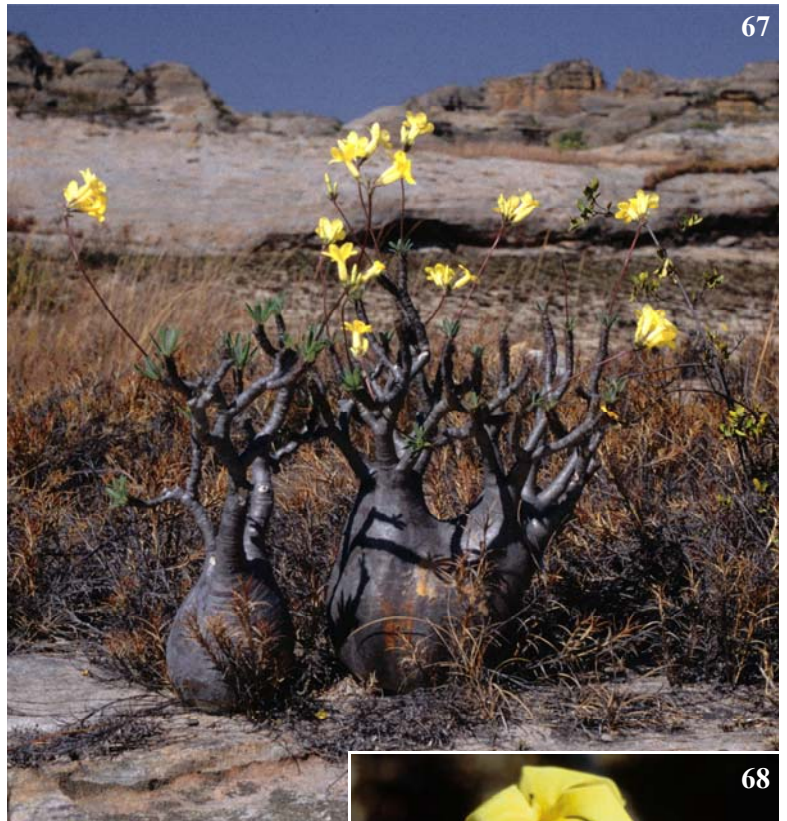
Fig 70. Chameleon executing its slow-motion aerobatics.



71



70



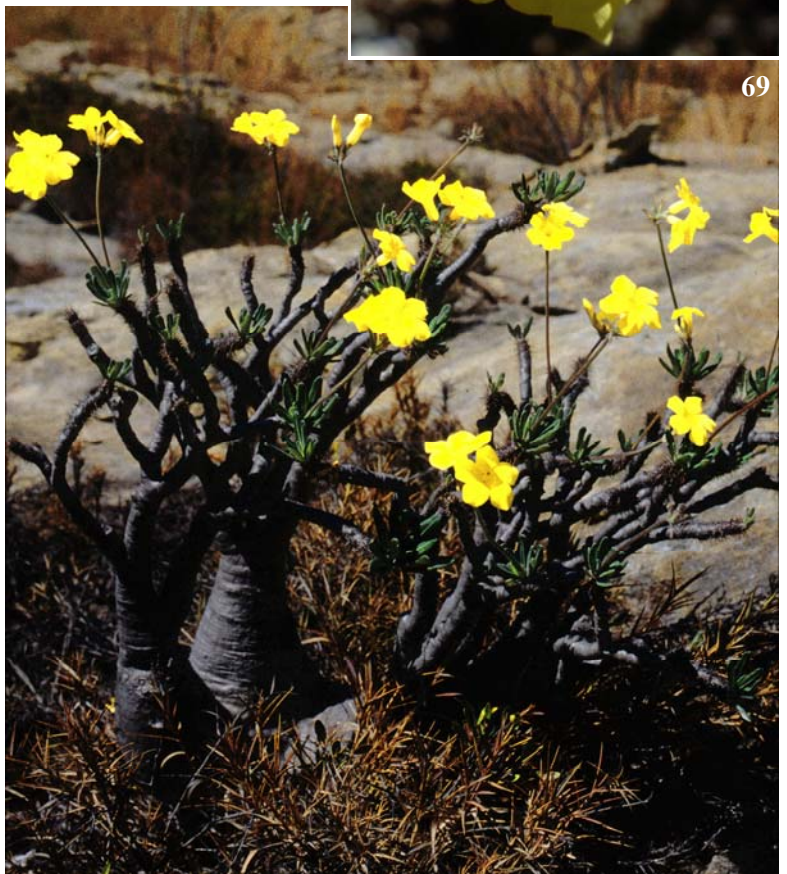
67

*Pachypodium
rosulatum* v. *gracilis*

Figs. 67. Growing with
Coleochloa setifera
Fig. 68. Close-up of flowers.
Fig. 69. Another plant.



68



69



Fig. 72. Deciduous forest.

Fig. 73. Clearance of deciduous forest by burning to promote grass for cattle.





Fig. 74. Baobabs can survive burning. As they are bulky and expensive to move they are sometimes left in situ.

Fig. 75. Thunder clouds gather to release precious water for a hot, arid land, but grass provides soils with little protection and runoff results in erosion.





76



78

Fig. 76. *Agave sisalana* with a lone, surviving Baobab and deciduous forest in the background.

Fig. 77. *Aloe buchlohii*. Fig. 78 *Alluaudia procera*



77

A typical village/town in the SW of Madagascar is shown in figs. 78-81, page 28. Streets are typically dirt. Some properties are made of brick, but many are made of local material such as wood from the forest. Trading in the streets is common. Sanitation is not of the highest standard and it is variable. The most primitive is drainage into the land round the property. Animals may roam freely. The pig, fig. 80, page 28 has just emerged from a good wallow in the "drainage" from a house. The people are remarkably jovial and friendly. At a way side "café" in the main street, consisting of a container of water, a kettle, fire and some cups, the lady in charge voluntarily gave me a free cup of tea after I had purchased three. She was amazed at my capacity! Thankfully the water was boiled. Most villages/town seem to have communication with other parts of the country. A tall communication mast can be seen in fig. 81.

In the surrounding area a variety of shrubs and bushes were seen. The massed white flowers of an Asclepiad species were prominent on a *Xerosicyos perrieri* bush, fig. 82, page 29, the latter giving support to the former. *Decarya madagascariensis*, fig. 84, page 29, is a unique shrub in the Didiereaceae family. It has zig-zag, interweaving stems, which give it great appeal. The species name is often spelt Decaryia, but it is recorded as Decarya in the Illustrated Handbook of Succulent Plants - Dicotyledons, because that was the spelling in the original publication (Phillipson & Condry 1994). Decarya is a monotypic genus. *Euphorbia stenoclada* is a much branched and very spiny plant, as each branch terminates in a hard spine. It is not to be trifled with, fig. 1, page 1 and 85, page 29. *Uncarina peltata* is an unarmed plant producing large, yellow flowers, but the fruits are quite a different matter, fig. 82, page 29. They are heavily armed with prominent, hooked spines. Their purpose is to aid distribution by attaching the fruits to passing animals and humans, but human experience is that it is both difficult and painful to detach from an Uncarina fruit. The spines on the fruit in fig. 82 are not fully developed.

Pachypodium geayi is noted for its long stem with a symmetrical crown of leaf-tipped branches. The plant in fig. 86, page 30 is almost the last one at the edge of an area which had been cleared. It has smaller flowers than other members of the genus. Exceptionally, large specimens of *Pachypodium geayi* with very broad trunks have been likened to an *Adansonia*.

Aloe subacutissima is a branching species with more or less upright, dull-green leaves, which have a reddish tinge in strong sun, fig. 87, page 30. It is sometime listed under the illegitimate name *Aloe intermedia*. *Aloe deltoideodonta* v. *intermedia* is a synonym.

A group of *Adansonia grandidieri* make imposing features in the centre of a small village, fig. 88, page 30. Some of these plants are just coming into leaf. When fully leafed, they have a different appearance as the typical branching, which is a distinctive feature of an

Adansonia, is obscured.

Clearing the vegetation for dirt roads in the SW is not too difficult a task, but these road may have to find their way round massive *Adansonia madagascariensis*, figs. 89 & 93, pages 31 & 32, which do pose a problem for clearance. The small tree in front of the *Adansonia* in fig. 89 is *Euphorbia leucodendron*. The holes in the one in fig. 93 have been made both by man and animals, but only the former has felt a need to carve names in the bark as well! It was on this road that one vehicle dropped its oil filter.

With luck it is sometimes possible to photograph an animal or two in all this vegetation, but mostly they do not willingly pose. Fig. 92, page 31 shows a black and white Madagascan crow with powerful bill, fig. 90 a large snake, constrictor type, just escaping into the shrubs and fig. 91, a *Testudia radiata*. This tortoise was captured by one our drivers whilst the oil filter was being replaced. He intended to take it home, evidently for food, but we persuaded him to let us release it. Further along the road we can across another tortoise engaged in a major act of conservations - eating an alien *Opuntia ficus indica*. The bite it had taken out of the *Opuntia* pad can be seen clearly in fig. 94, page 32. It is obvious that the tortoise is well protected from the spines!

Amongst the arid bush and coastal thickets, *Aloe divaricata* is found. It is quite widespread and is somewhat intermediate between the small and tree aloes. The specimens in fig. 95, are growing with a young *Alluaudia procera* and *Xerosicyos perrieri* but, contrary to what the photograph might seem to imply, the *Aloe* does not require any support from other plants. Young *Alluaudia procera* look very different from more mature plants, fig. 90, page 34.

Fig. 96 shows a plant provisionally identified as *Adenia olaboensis*, which is widespread in the SW of Madagascar. It has a swollen stem with climbing shoots. Rauh reports that *Adenia olaboensis* is often planted near tombs as a Sacred plant. Nearby a very attractive bug seemed to balance precariously on a thin branch, fig. 97!

Alluaudia dumosa, fig. 98, could easily be mistaken for an *Euphorbia*. It has rod like stems, which are photosynthetic organs. The leaves are very small and occur on new growth. They are short lived.

Some distance inland from the SE coast is more grassland created again for cattle. Virtually all other plants have ceased to exist with the exception of *Bismarkia nobilis*, fig. 100 page 35. This plant is fire resistant, so the periodic burning of the grass has no effect on it.

Moving more or less westwards, back into the deciduous forest, trees draped with *Usnea* lichen wave in the breeze as if to welcome you, fig. 104, page 36.



Fig. 79 - 81.

A typical small town in the SW showing the main street.

Animals roam freely. The pig has just wallowed in the "drainage" from houses.





Fig.82.
An Asclepiad species roaming through a
Xerosicyos perrieri bush.

Fig. 83.
Uncarina peltata
with fruit, which, when fully developed, is
very spiny.

Fig. 84.
Decaryia madagascariensis.

Fig. 85.
Euphorbia stenoclada.





86



87

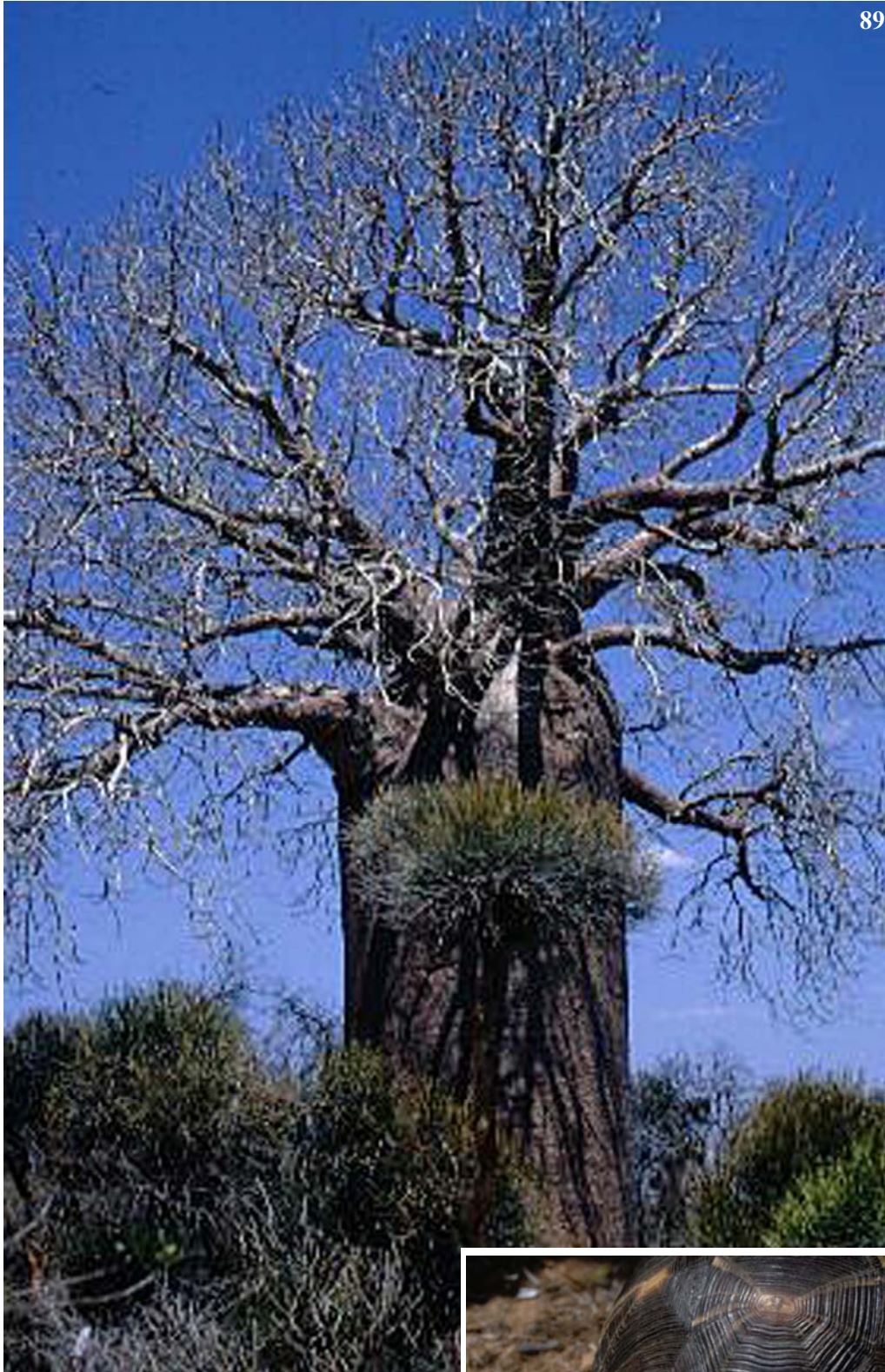
Fig. 86. *Pachypodium geayi*
Almost the last plant at the edge of an area which has been cleared.

Fig. 87. *Aloe subacutissima*

Fig. 88. *Adansonia grandidieri*
A group in the centre of a small village.



88



89



90

Fig. 89.
Adansonia
madagascariensis
with
Euphorbia leucodendron
in front.

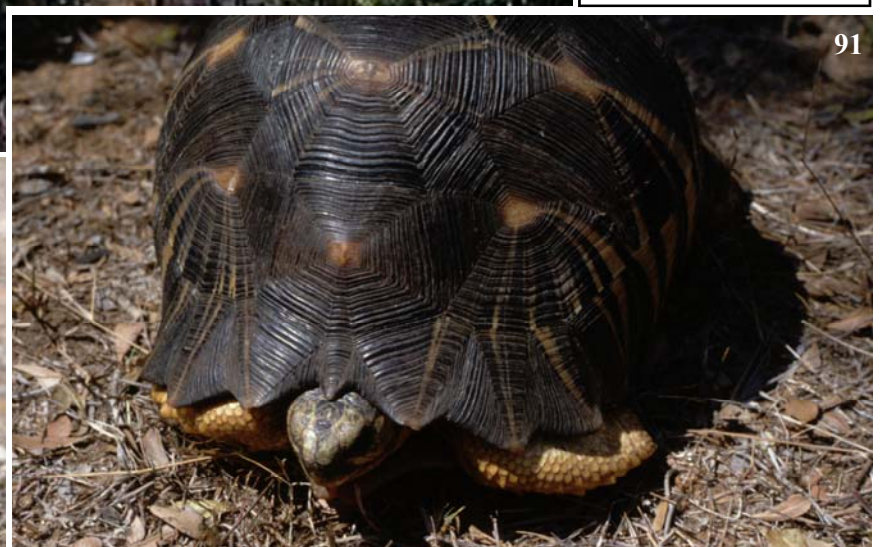
Fig. 90.
Large snake taking
refuge in the shrubs.

Fig. 91.
Testudia radiata
This large tortoise was
“captured” by our driver
and put on top of the bus
for later consumption.
We persuaded him to let
us release it.

Fig. 92.
Madagascan crow.



92



91

Fig. 93.

A main road through the SW.
This is the road on which one
vehicle lost its oil filter.

Baobabs are a feature along this road,
which winds around them.

The holes in the massive specimen in
the foreground have been made both
by man and animals and, of course,
some people have just had to carve
their names!



Fig. 94.

Testudia radiata
demonstrating a worthwhile act of
conservation - eating an
Opuntia ficus indica.



Alluaudia comosa, figs 103 & 105, page 36 has a distinctive form, like a large, short stemmed mushroom.

Multiple divergent trunks branch freely at the top to form a more or less flat crown.

Delonix decaryi is native to the SW of Madagascar. It has an umbrella-shaped crown and a swollen trunk with grey peeling bark. The plant growing to the southeast of Tuléar in vastly degraded habitat, figs. 106-107 page 37, seems to fit this description. The flowers of this species are impressive. The fruits on the plant in the photograph are not fully developed.

Growing not far from Tuléar was *Euphorbia leucodendron* ssp. *leucodendron*, fig. 108, page 38. The cylindrical stems may be straight sided or articulate, as in the photograph. Plants are multi branched becoming dense with age.

Pachypodium rosulatum v. *gracilis*, figs. 109-110, page 38 is one of four varieties and one form of a quite widespread species. It is smaller than v.



Fig. 95.
Aloe divaricata
Alluaudia procera
Xerosicyos perrieri

Fig. 96.
Adenia olaboensis

Fig. 97.
A “bug” and very attractive!



varieties of *deltoideodonta*, of which this is one, are recorded as little known in The Illustrated Handbook of Succulent Plants-Monocotyledons. The plant photographed has narrow, greyish leaves. It is growing in *Coleochloa setifera*, a noted pioneer of rocks.

At last it was time for the flight from Tuléar to Tananarive and then home. This expedition to Madagascar had certainly been an experience and there was much to reflect upon! Almost all of the party had suffered some degree of illness during the tour and one in particular was very ill and had to be left at a hotel until departure, when he was taken to the airport in a wheelchair. He did recover back home in Australia. Sometime after we arrived home, the South African Society announced that it had negotiated a small refund with the Madagascan tour company as a gesture of good will!

Fig. 98. *Alluaudia dumosa*
Fig. 99. *Alluaudia procera*

rosulatum and has a distinctive more-or-less rounded caudex, which can just be seen under the mass of bright yellow flowers.

Fig. 111 page 39 depicts a plant provisionally named *Adenia* species? The name *Adenia olaboensis* has been suggested, compare with fig 96, page 33, but this is doubtful. It has a particularly rough trunk which, off photograph, terminates in a thickish, whip like branch. For the time being the plant remains something of a mystery.

Figs 112 and 113, page 39, show a plant which, judging from its flowers, is an Asclepiad species. It was free standing.

The *Aloe* in fig. 114, page 39 was growing in the vicinity of Tolinaro and is compatible with *Aloe deltoideodonta* v. *brevifolia*. Two of the three





Fig. 100. *Bismarkia nobilis* in grassland.

Fig. 101 - 102. *Aloe imalotensis*





103



104

Fig. 104.
Usnea lichen on trees in deciduous forest.
Figs. 103 & 105.
Alluaudia comosa



105

106



Fig. 106.
Delonix decaryi

Fig. 107.
Flowers and fruit of
Delonix decaryi

107





108

Fig. 108.
Euphorbia leucodendron
Figs. 109-110.
Pachypodium rosulatum v. *gracilis*



110



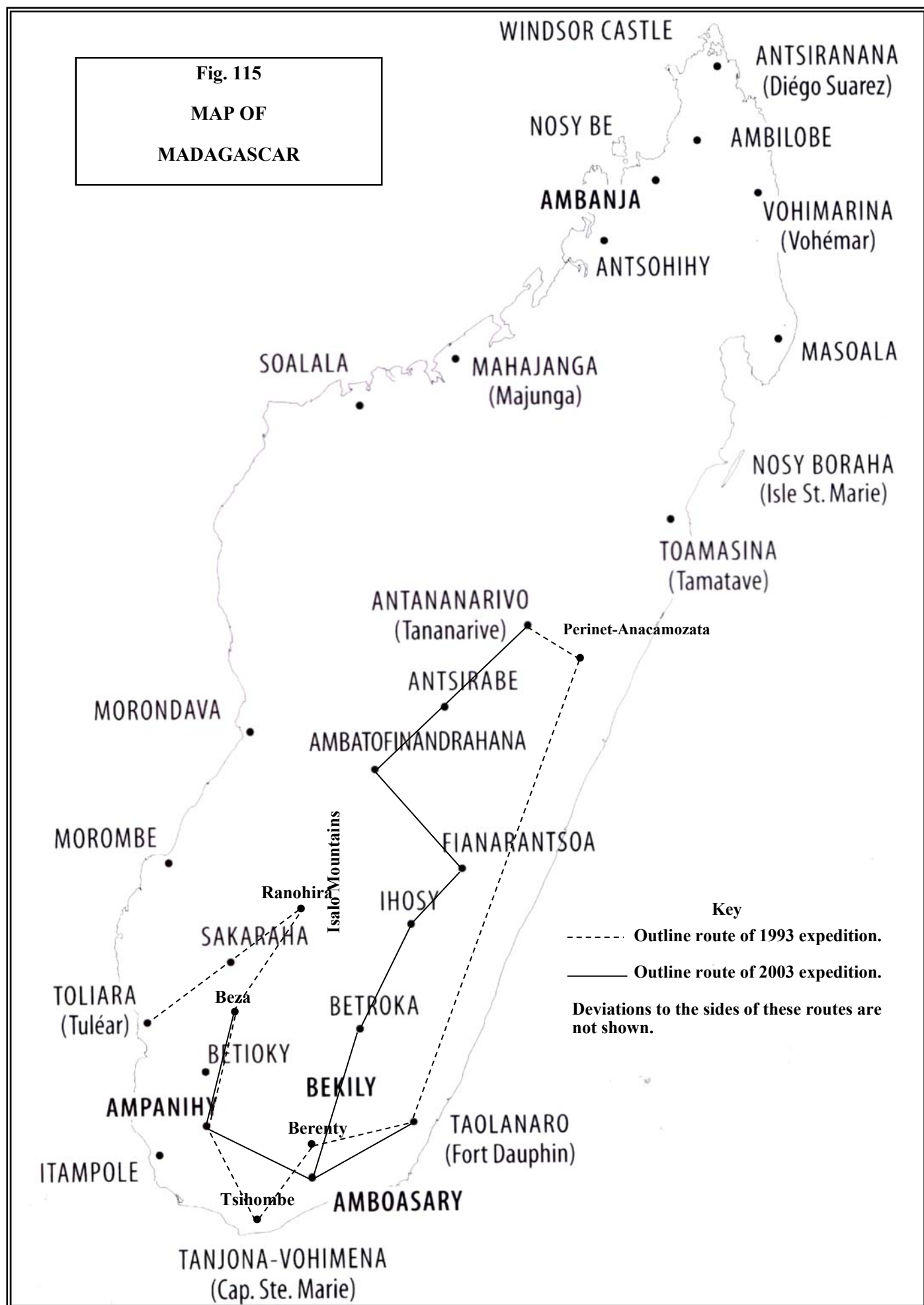
109



Fig. 111.
Adenia species ?
Fig. 112 & 113.
Asclepiad species
Fig. 114.
Aloe deltoideodonta growing in
Coleochloa setifera



Fig. 115
MAP OF
MADAGASCAR



Appendix - Lemurs.

Lemurs are perhaps the best known of all Madagascan animals. They appear soft and cuddly and have an attractive appearance. As with the plant life of Madagascar, so with the animal life. They, too, have been reduced in numbers as a result of the activities of man, but some lemurs can still be seen, particularly in reserves.

The following photographs show the ones seen on the 1993 expedition.

Brown lemur

Fig. 239.
Unconcerned, but watchful.

Fig. 240.
Unmoved, but with one eye
open.

Fig. 241.
Why was I disturbed?



Fig. 239



Fig. 241



Fig. 240



Propithecus verreauxii
in deciduous forest.

Fig. 242.
High in the safety of
the trees a male
watches the human
intruders.

Fig. 243.
Mother, with baby
clinging to her chest,
retreats from humans.
Is this where the
phrase “bottoms up”
originated? With
apologies to beer
drinkers!

Fig. 244.
Having gained
confidence the male
relocates a little
closer, but still with a
watchful eye.

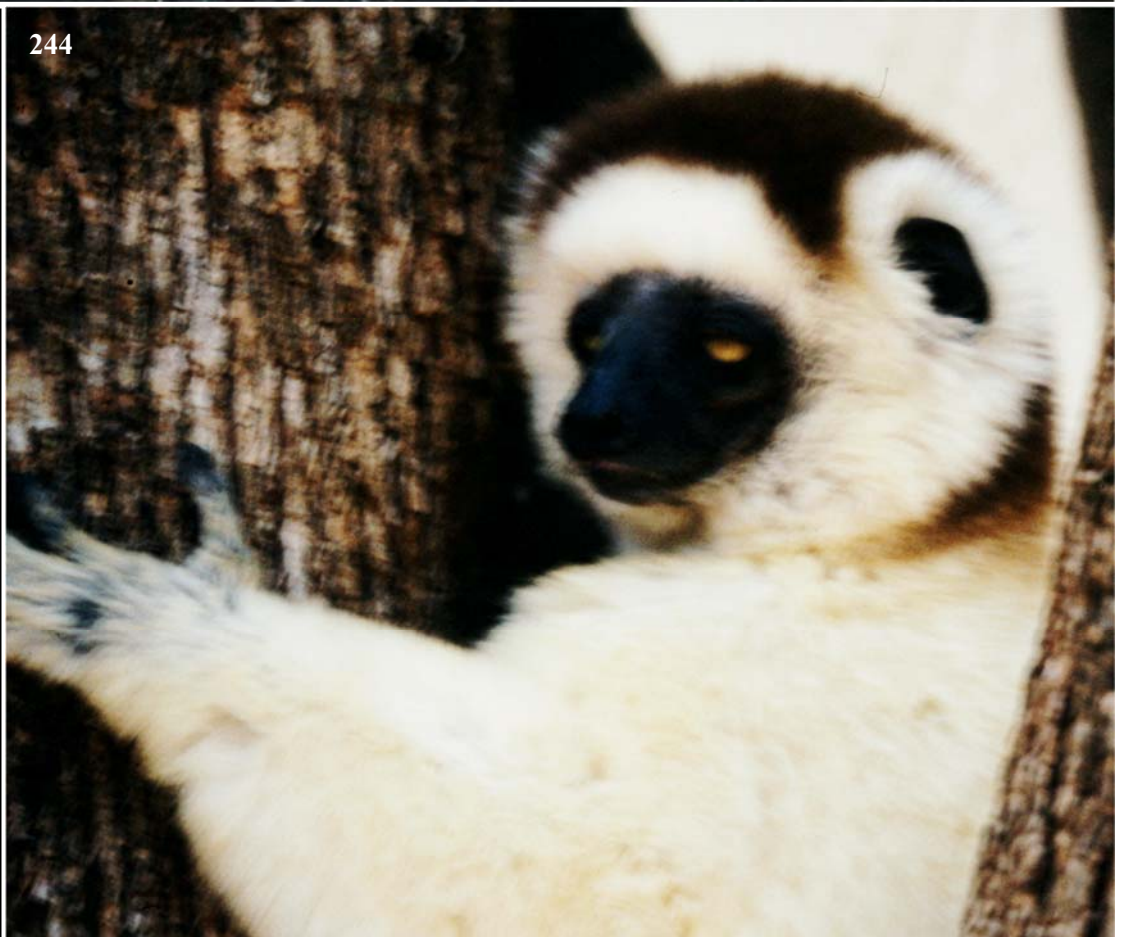




Fig. 245



Fig. 246



Fig. 249

Figs. 245-249. *Lemur catta*
A troop, very familiar with people, in a variety of poses.



Fig. 248.



Fig. 247



Fig. 250

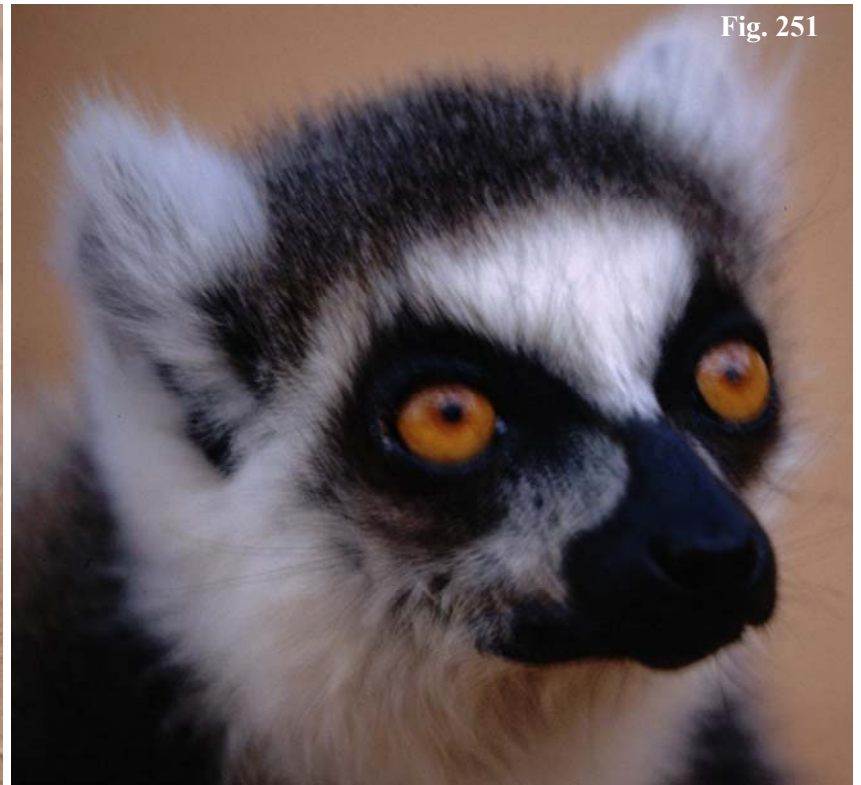


Fig. 251

Fig. 249. *Lemur catta* with twins. Fig. 250. *Lemur catta* with a look of expectation.

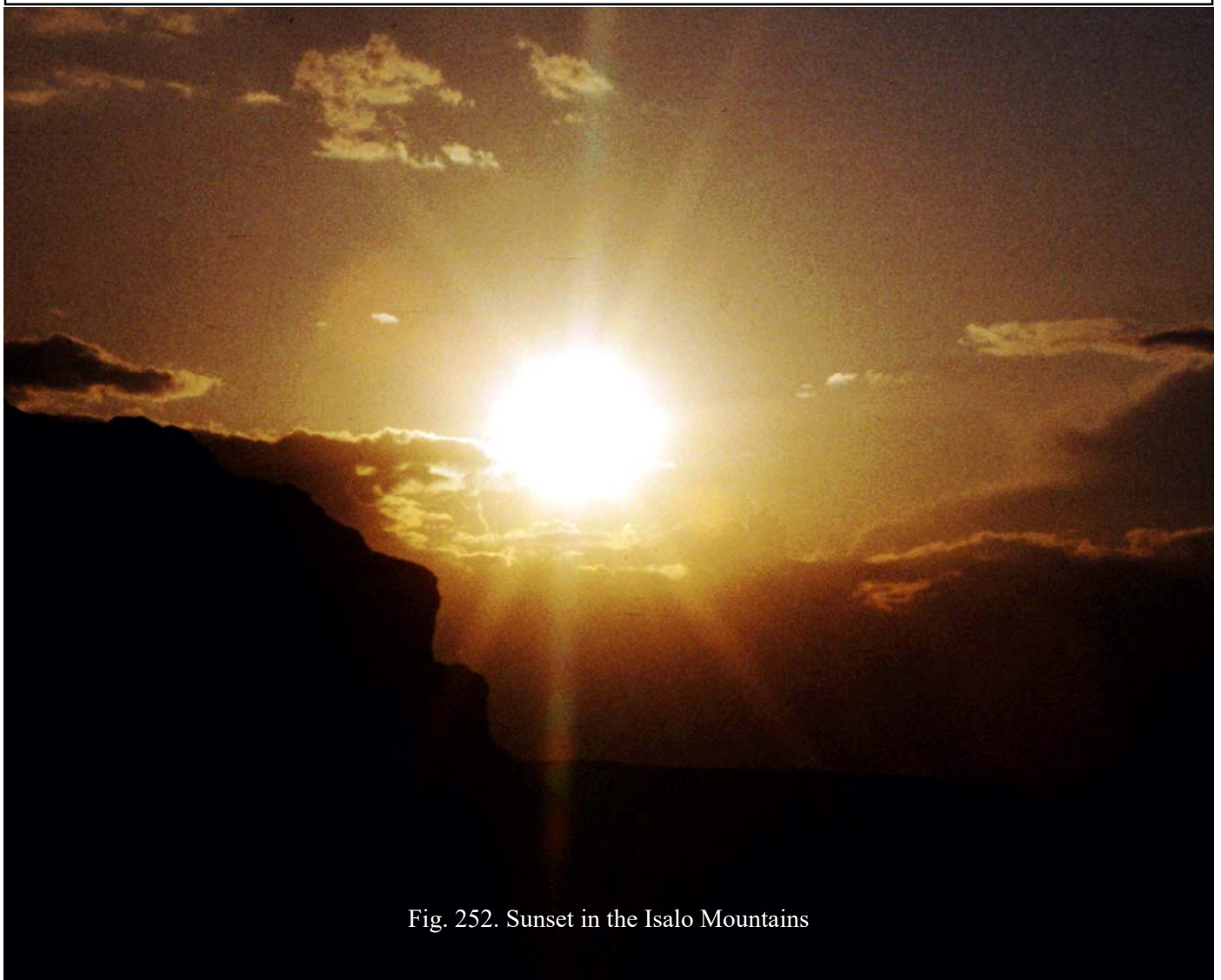


Fig. 252. Sunset in the Isalo Mountains