ALSTERWORTHIA INTERNATIONAL

THE SUCCULENT ASPHODELACEAE JOURNAL

Fig. 1. *Aloe laeta.*
Ambatodidy, Mt. Ibity.

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Volume 5. Issue 1. March 2005 ISSN: 1474-4635

Riversdale
Mecca for Magnificent Haworthias

Part 2.

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***H. magnifica* surrounded by *H. retusa* south west of Riversdale**

Now we jump to an area south west of the town close to the road to Vermaaklikheid. In this general area, several populations of fairly typical *H. retusa* occur, as can be seen in figures 2 through 6. These pictures were all taken on the same day in the winter of 2003 so that the population shown in figures 2, 3 and 6 has a tendency towards red colouration that might be influenced by the

(Continued on page 4)

Fig. 2 - 5, top left clockwise.
Typical forms of *Haworthia retusa* encountered south west of Riversdale.
Fig. 12, page 11, Alsterworthia International November, 2004 location

Fig. 6. Another typical form of *Haworthia retusa* south west of Riversdale.
Fig. 12, page 11 Alsterworthia International November, 2004 location

Figs. 7. *Haworthia magnifica* growing in white clay and ferricrete southwest of Riversdale

(Continued from page 2)
nearby form of *H. magnifica* (figures 7 through 10, pages 3 - 5).

This form of *H. magnifica* grows well withdrawn into the white clay amongst ferricrete pebbles. The leaves are very dark and covered with shiny, translucent tubercles on the upper leaf surface. Most plants at this locality have sharply pointed end areas to the leaves, despite being relatively close by the type locality of *H. magnifica* var *atrofusca*, which have rounded leaf ends.

This locality of *H. magnifica* sports tremendous variation of leaf form and surface, as illustrated by pictures of five clones grown from seed collected there and grown by Bruce Bayer (figures 71-75 on page 23).

Interaction with *H. heidelbergensis*

The next stop is at the westernmost locality of this tour, about 15 km west of Riversdale. The habitat can be seen in figures 11, 20 page 8 and 24 page 9. This is the easternmost known

Figs. 8 - 9. *Haworthia magnifica* growing in white clay and ferricrete southwest of Riversdale

locality for *H. heidelbergensis* (see figures 12 through 14, page 6). The plants are small and with a typical rosette diameter about 2 cm. The colour of *H. heidelbergensis* is usually light green with milky windows on the upper leaf surfaces broken by 3 to 5 non -translucent lines. At this site, the plants grow very well, protected under tufts of grass.

Nearby, one finds a rather compact and hard form of *H. retusa* growing in full sun (see figures 15 and 16, page 7); as well as a long leaved form of *H. heidelbergensis*, which would just as well pass for *H. magnifica*, growing well shaded in the grass (figures 17 and 18 page 7).

A couple of hundred meters to the west of these populations, a number of populations occur dotted around the hillsides, which could be intermediate between *H. heidelbergensis* and *H. magnifica*. (Figures 19, page 7, 21 pages 8 & 22-23, page 9.) Some of these are quite proliferous, as indicated by figure 21.

One population with significant variation within is possibly best explained as a

Figs. 10. *Haworthia magnifica* growing in white clay and ferricrete southwest of Riversdale.
Fig. 11. Habitat of *Haworthia heidelbergensis* west of Riversdale.
The shape of the Potberg is barely visible on the horizon.

product of hybridisation between *H. retusa* and these intermediate *heidelbergensis*/*magnifica* plants. The rosettes are bigger than the other intermediate populations and tend to grow more exposed (see pictures in figures 25 through 28 page 10). The clump shown in figure 26 in a bizarre way resembles forms of *H. magnifica* var *splendens* from east of Albertinia – some 100 km away! The population seems to have changed significantly from only a few plants observed when I first visited the site with Essie Esterhuizen about 15 years ago!

A bag of tricks as *H. magnifica* tangles with *H. heidelbergensis*

We now move eastwards along a range of generally flat topped silcrete/ ferricrete hills covering about 5 km (fig 3, page 4, Alsterworthia International Nov. 2004). Figure 29 page 11 gives a general perspective of the area, with the Langeberg Mountains rising in the background. Figure 30, page 11 shows the habitat of a population which is extremely variable (figures 31 through 34, pages 12). The plants are large, with rosettes reaching 10 cm or more in diameter. But the habitat is rather unique. In fact it is quite probable that the subtle differences in habitat and local variation of rock and soil within the context of the ferricretes and conglomerates have a profound influence on the appearance of the plants.

As we move eastwards and northward from here along the hills, we encountered a series of populations that appear intermediate between *H. magnifica* and *H. heidelbergensis*. The typical habitat is shown in figure 39, page 14 while figures 40 through 47 pages 14-15 give some idea of the range of forms. Every plant appears to be different, with some populations closer to *H. magnifica*, while others tend to be closer to *H. heidelbergensis.* Here and there, one finds plants with curiously twisted leaf ends (see figure 44, page 15) which may indicate the influence of *H. floribunda.* Towards the east, the forms are more consistently *H. magnifica* (see figures 48-49, page 16).

(Continued on page 18)

Figs 12 -14. Top to bottom.

Haworthia heidelbergensis growing west of Riversdale.

Figs. 15-16 - top left to right.

Haworthia retusa growing barely 100m from H. heidelbergensis west of Riversdale.

Figs. 17-18. Left top to bottom.

A form which can be assigned to either *H. heidelbergensis* or *H. magnifica.*

Figs. 19. Below.

A Haworthia magnifica/heidelbergensis intermediate, see also pages 8-9, occurring in the extreme west of our study area.

Fig. 20. Opposite upper.

Daphne Bayer walking through the habitat of *Haworthia magnifica/ heidelbergensis* intermediates west of Riversdale.
Clay bursts in the silcrete capped hillsides provide ideal habitats for the haworthias.

Fig. 21. Opposite below.

A clump of Haworthia magnifica/ heidelbergensis intermediate occurring in the extreme west of our study area.

Fig. 22 left. Fig.23 below.

A range continued of *H. magnifica/heidelbergensis* intermediates occurring in the extreme west of our study area.

Fig. 24 bottom row.

The landscape between Riversdale and Heidelberg, with the Langeberg mountain range in the background. Patches of Erica in flower can be observed in the foreground.

Figs. 25-28 left clockwise.

Plants from a very variable population that may be derived from recent hybridisation between *H. retusa* and *H. magnifica/ heidelbergensis* intermediates present in the area.

Fig. 29. Opposite top.
View from the top of a ferricrete plateau with the "Sleeping Beauty" peaks of the Langeberg mountain range in the background.

Fig. 30. Opposite bottom.
Habitat of *Haworthia magnifica* on the western edge of the ferricrete plateaus.

Figs 31 - 34.
Top left clockwise.

Extremely variable population related to *Haworthia magnifica* from the site shown in fig. 30, page 11.

Figs. 35 - 37.
Top two rows, clockwise.

Extremely variable population
continued, related to
Haworthia magnifica,
from the site shown
in figure 30, page 11.

Figs. 38.
Right.

An intermediate between
H. magnifica and *H. heidelbergensis.*
Intermediates occur over several
populations
at out second last tour stop.

Fig. 39.
above

Typical habitat of
silcrete/ferricrete hill sides
at our second last tour stop.

Figs. 40 - 42.
second & third rows, left clockwise.

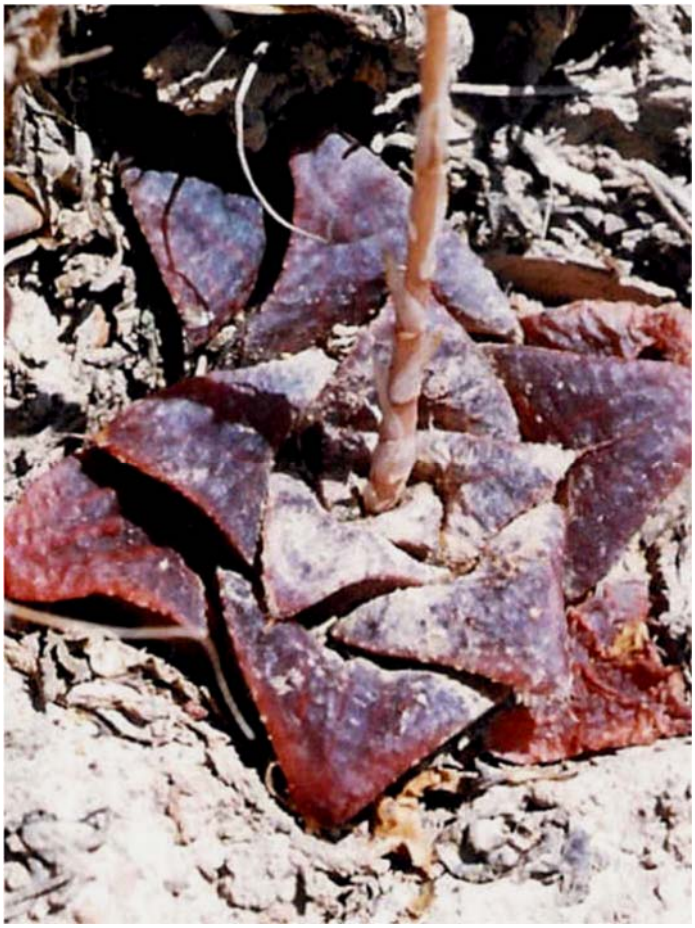
The range of intermediates
between
H. magnifica and *H. heidelbergensis*
that occur over several populations
at out second last tour stop.

Figs. 43 - 47.
Clockwise from top left.

More from the range
of
intermediates
between
Haworthia magnifica
and
Haworthia heidelbergensis
that occur over
several populations
at out second last tour stop.

Figs. 48 - 49 . Top row, left to right.
Truer forms of *Haworthia magnifica* from the Kweekkraal hills.

Figs. 50 below *Haworthia magnifica* v. *atrofusca* in the eastern part of the Kweekkraal hills, not too far from the type locality of this variety.



Figs. 51 - 52 .
Haworthia magnifica v. *atrofusca* in the eastern part of the Kweekkraal hills, not too far from the type locality of this variety.

Fig. 53. Our last stop is in the foothills across the valley of the Vet River..

(Continued from page 6)

In the extreme east of this area, another transition occurs. The leaf ends become rounded and the colour reddish brown. This is the variety *atrofusca,* figs 50-52, pages 16-17. In fact, the type locality of *H. magnifica* var *atrofusca* is on the eastern edge of this area. The amazing thing though is that as we moved into the area of variety *atrofusca*, we encountered populations of *H. floribunda* (see figure 60, page 20). At one site, there were even signs of hybrids between *H. floribunda* and *H. magnifica* var *atrofusca*. Strangely, we never found *H. floribunda* co-occurring with *H. magnifica* var *magnifica* in the study area.

The most beautiful form of var *atrofusca*

Our last stop is to the north of Riversdale. This habitat is in the foothills shown in figure 53, page 17 across the valley of the Vet River north of the type locality of var *atrofusca* from where this picture was taken. Figure 54 shows the habitat at this locality of var *atrofusca*, being more quartzitic with patches of fynbos (Protea and Erica) present around the grassy habitats of *H. magnifica* var *atrofusca*.

The range of forms that occur here is shown in figures 55 through 59. The plants are generally more turgid at this wetter site, but still grow flush with the clay soil. The colour tends to be reddish-brown while the leaf ends are rounded and the leaf surfaces have the characteristic shiny tubercles of *H. magnifica.* This form is very attractive in cultivation and appears to be the origin of the recently described *H. hayashi* Hayashi.

Again, *H. floribunda* occurs within a stones throw (see figures 61and 62, page 20). These plants are extremely small, occur well shaded and are very difficult to locate in the fynbos habitat.

Closure

The variability of the plants in the populations discussed here is enormous and could keep the collector, connoisseur and taxonomist busy for years (photographic summaries figs. 63 to 70, pages 21-22). It is clear that the recent trend to describe new species from limited material and based on relatively small differences will result in an unmanageable number of taxa if taken to its logical conclusion. The high level of variability will also invalidate analyses (whether taxonomic or cladistic) without establishing the stability of the relevant characters within populations through proper statistical techniques.

(Continued on page 21)

Fig. 54. The habitat of *Haworthia magnifica* v. *atrofusca* at the last stop of our virtual tour.

Figs. 55 - 59.
Top clockwise from left.

Forms
of
Haworthia magnifica
var.
atrofusca
growing
North West
of
Riversdale.

Fig. 60.

Haworthia floribunda growing near to *Haworthia magnifica* var. *atrofusca* to the west of Riversdale.

Fig. 61.
Haworthia floribunda var. *dentata* growing close to *Haworthia magnifica* var. *atrofusca* North West of Riversdale.

Fig. 62.

Haworthia floribunda var. *dentata* growing close to *Haworthia magnifica* var. *atrofusca* North West of Riversdale

(Continued from page 18)

Some taxonomic dilemmas need to be further investigated. *H. retusa* may be no more than a variant of the more widespread *H. turgida*, while the relationship between *H. magnifica* and *H. maraisii* is obscured by *H. heidelbergensis*, which seems to merge into both these two species. There seems to be an ongoing interaction between these and other species in a process that will be fascinating to fully understand.

VARIABILITY OF HAWORTHIA MAGNIFICA

Fig. 63. *Haworthia magnifica.* SE of Riversdale.

Fig. 64. *Haworthia magnifica.* E of Riversdale.

Fig. 65. *Haworthia magnifica.* SW of Riversdale

Fig. 66. *Haworthia magnifica.* W of Riversdale

EXAMPLES FROM DIFFERENT TYPES OF INTERMEDIATE POPULATIONS

Fig. 67. H*aworthia retusa*/*magnifica* intermediate population.

Fig. 68.
Haworthia retusa. Individual abnormal plant possibly resulting from pollination from nearby *Haworthia magnifica* populations.

Fig 69. Hybrid population.
Haworthia retusa/*H. magnifica*/*H. heidelbergensis.*

Fig. 70. Continuous intergradation.
Haworthia magnifica and *Haworthia heidelbergensis.*

Figs. 71 -75.
clockwise from top left.

Forms of
Haworthia magnifica.
in cultivation.

Grown by Bruce Bayer from seed collected South West of Riversdale.

Aloes of Madagascar. Part 1.

Jean-André Audissou

Madagascar is a large island, known above all for its important number of endemic plants, and also for the irreversible environmental damage caused by man! Deforestation, burning, over grazing, and the introduction of alien plants (Opuntia, Agave, Cereus) are responsible for the disappearance of many species of animals and plants each year. Despite this, new species are still discovered regularly. This last 12 month, 3 new species of *Aloe* have been described: *Aloe droseroides* Lavranos & McCoy, *A. inexpectata* Lavranos & McCoy and *Aloe florenceae* Lavranos & McCoy and others are waiting to be named.

In August 2003, I participated in an expedition to the centre and south of the island. The objectives were three fold: to observe very localised species, to try to find species no more encountered "in situ" for several decades and finally to find new species.

The first part of the expedition was in the highlands: Ibity Mountain and the region of Ambatofinandrahana, Mont Itremo. Mont Ibity, which reaches 2240m high, offers vegetation rich and varied. We were able to admire the magnificent *Aloe laeta* Berger (Fig. 1 page 1.), *Aloe trachyticola* Reynolds (Fig. 78), as well as the rare *Aloe silicicola* H. Perrier (Fig. 76) On the track we took from Ambositra to Ambatofinandrahana, we encountered *Aloe conifera* H. Perrier (Fig. 77), as well as the imposing *Aloe capitata* var. *cipolinicola* H. Perrier. This latter, as its name indicates, grows uniquely on calcareous rocks. Our ascent of Itremo allowed us to observe *Aloe compressa* v. *schistophilla* H. Perrier, and then the very localised *Aloe parvula* Berger. At the top of Itremo we found two other very localised species: *Aloe erytrophylla* Bosser (Fig. 79) and *Aloe itremensis* Reynolds (Fig. 80, page 26). Some months earlier, J. Lavranos and Tom McCoy had discovered to the north of Amatofinandrahana two new species: *A. droseroides* Lavranos & McCoy & *A. inexpectata* Lavranos & McCoy. We, therefore, decided to go to find them. After a difficult journey on an old abandoned road, we entered a large valley bordered by imposing population of *Aloe capitata* v. *cipolinicola* H Perrier. At the foot of a small cliff, we saw our first miniature *Aloe*: *Aloe droseroides* Lavranos & McCoy. It is a small delightful plant (Fig. 81), perhaps the smallest of the genus *Aloe*. About a dozen metres

Fig. 76
Aloe silicicola
Ambdohiponany, Mt. Ibity.

Fig. 77
Aloe conifera
Ambohitsileabodo SW Ivayo

Fig. 78
***Aloe trachyticola* Reynolds**
Ambatodidy, Mt,. Ibity

Fig. 79
Aloe erytrophylla,
Col de l'Itremo

Fig. 80
Aloe itremensis
Col de l'Itremo.

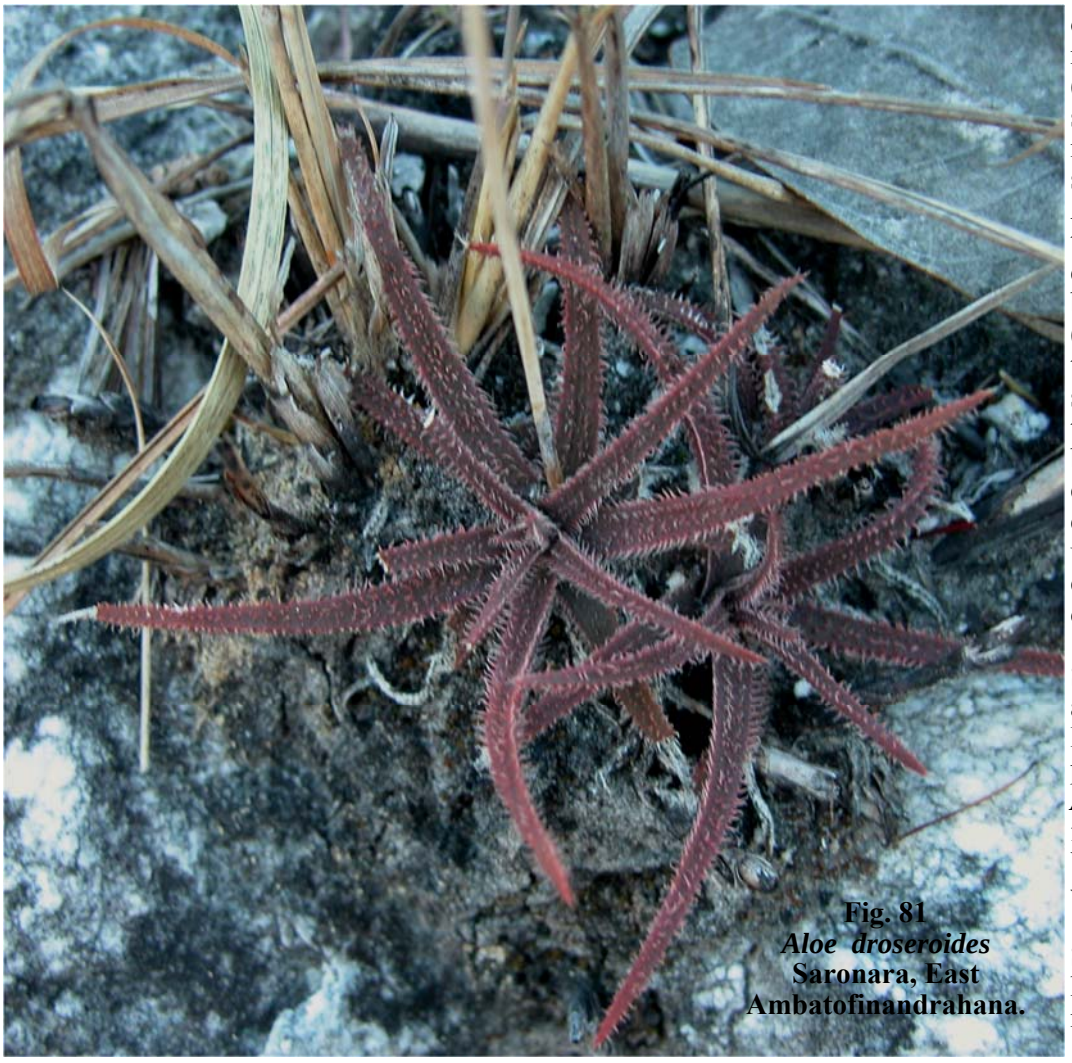


Fig. 81
Aloe droseroides
Saronara, East Ambatofinandrahana.

higher grows *Aloe inexpectata* Lavranos & McCoy (Fig. 82). Resembling at first sight *Aloe calcairophila* Reynolds, it is distinguished from it by its stem and rose tinted flowers.

From Ambatofinandrahana, we went in the direction of Fenoarivo in order to stop some kilometre from there at a place with calcareous rock, where *Aloe calcairophila* Reynolds grows. We were able to establish that this admirable small plant grows in compact clumps, exposed to full sun or in situations with semi shade. Some kilometres further on, we tried to find *Aloe cyrtophylla* Lavranos (Fig. 83). After a very long search, we found it growing in very eroded calcareous rock. It is actually a very localised species described recently (1998)

Taking again the road to Ambositra, we had the opportunity to encounter the rare *Aloe cremersii* Lavranos (Fig. 84, page 28) at the summit of a quartzite mountain. Continuing to the south on the track from Andhoharanomaitso, we topped a hill with a stone quarry. Growing there at the base was an *Aloe* sp. in flower (Fig. 85, page 28). It appeared to us that we had a new species. A year later, I learnt that this site, revisited recently by another party, had been completely devastated by quarrying. Only a few uprooted specimens could be collected for a future description.

South of Ihosy, we came across *Aloe betsileensis* H. Perrier (Fig. 86, page 29). The plant somewhat resembles *Aloe macroclada* Baker, but flowering is quite different. Young plants can be confused with *A. conifera* H. Perrier.

Several days later, after we had visited several biotypes rich in succulent plants, we

Fig. 82
***Aloe inexpectata Saronara,* E. Ambatofinandrahana.**

came across an *Aloe* species just before arriving at Esonomy to the north west of Fort Dauphin. This new species appeared to us to be very variable, as testified by photos 87 page 29, 88 page 30 and 92 page 32. The density of the spots was more or less strong. Certain plants exposed to full sun were even orange and immaculate (Fig. 88). Given the modest size of this *Aloe* and the appealing beauty of the leaves, it is certain that this was one of the most interesting discoveries of expedition. Next day, going down again to Fort Dauphin, we examined a hill to the north of Maromby. There we found an *Aloe* sp. (Fig. 89 page 30), which seemed to us to be a new species.

Finally, to end our journey of 24 days rich in discoveries, we examined a xerophytic forest on the banks of the river Mandrare, to the south of Amboasary. We found a forest still intact, very rich in succulent plants. There grows the delightful *Aloe ruffingiana* Rauh (Fig. 91) described in 1999, as well as an interesting hybrid between *A ruffingiana* and *A. divaricata* (Fig. 90)

Many other interesting aloes were seen during the expedition. These will be the subjects of a second article to be published in due course.

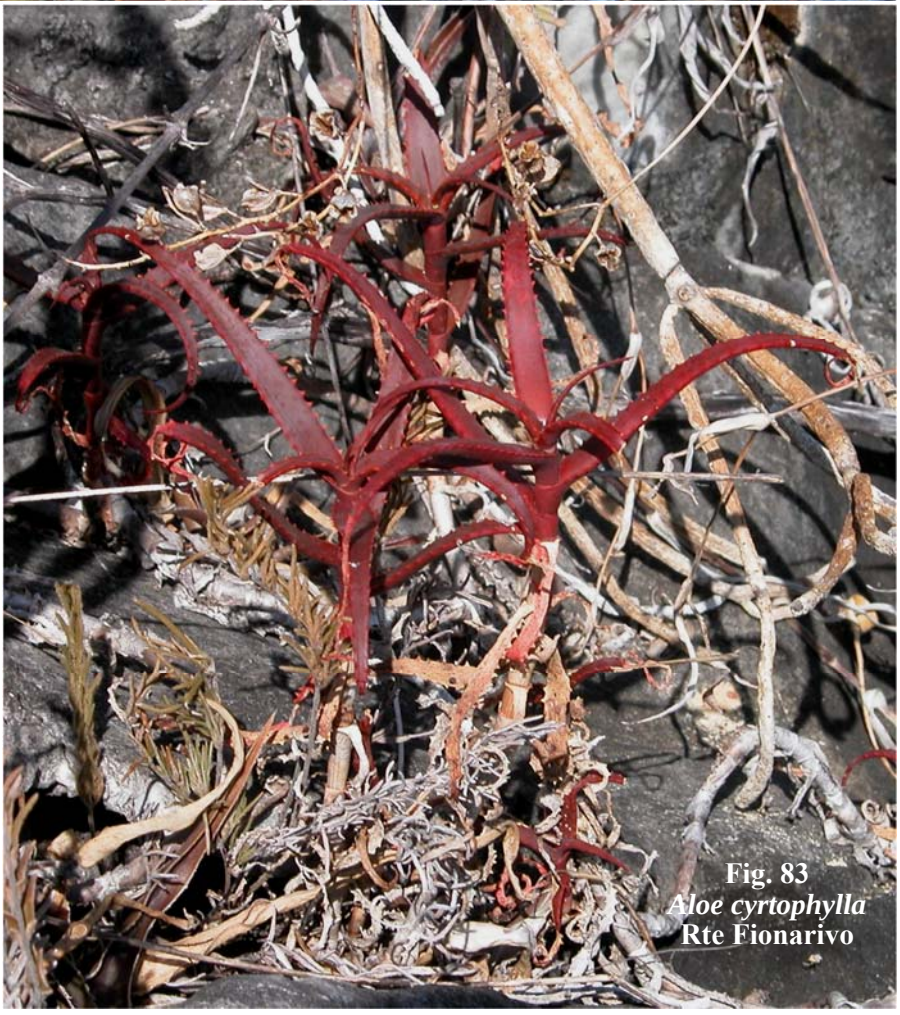


Fig. 83
***Aloe cyrtophylla* Rte Fionarivo**

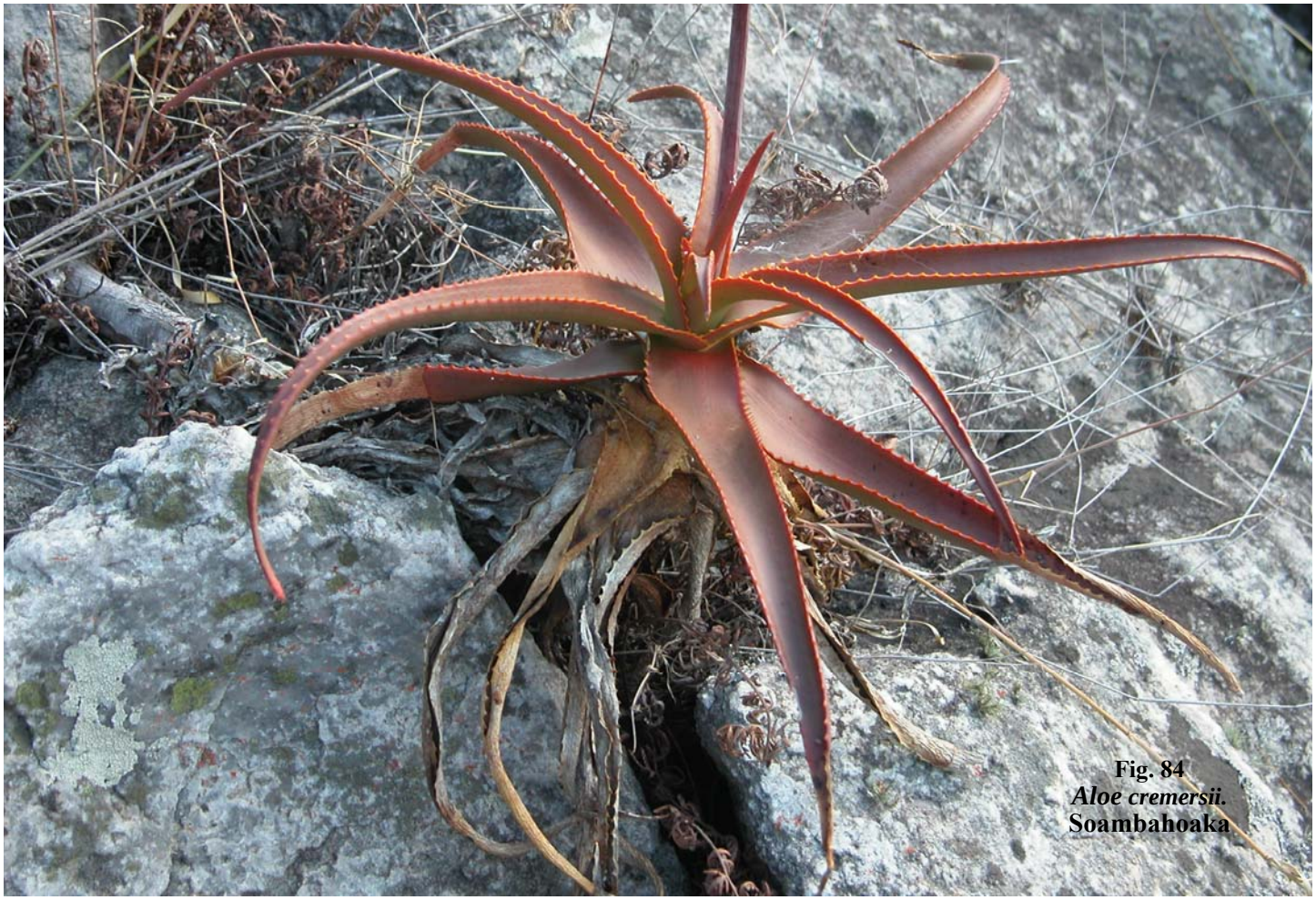


Fig. 84
Aloe cremersii.
Soambahoaka

Fig. 85
***Aloe* sp. nova.**
Andhoharanomaitso

Fig. 86
Aloe betsileensis
65 Km S Ihosy

Fig. 87
Aloe sp. nova.
Esonomy

Fig. 88
Aloe sp. nova.
Esonomy

Fig. 89
***Aloe* sp. nov.**
Maromby

In spite of the undeniable success of this expedition, success was not total. Indeed, we did not find certain species such as *Aloe alfredii* Rauh, *Aloe parallelifolia* H. Perrier, *Aloe cryptoflora* Reynolds, *Aloe rauhii* Reynolds and *Aloe albiflora* Guilaumin. We searched for this last one in vein east of Tsivory. It has never again been found since it was discovered by Boiteau in1939. Does it still exist in its natural habitat? It is highly improbable. There, also, fire has done its work.

Editor's note:

Certain plants referred to in this article can be seen at Jean-André's web site: http://www.audissou.com

Fig. 90
A ruffingiana* x *A. divaricata
Ambatomena, S Amaboachar

Fig. 91
Aloe ruffingiana
Ambatomena
S. Amboachar

Fig. 92
Aloe sp. nova.
Esonomy

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New plants for 2005 (extract only)

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Aloe albiflora € 4,50
Aloe betsileensis JAA 415 S. of Ihosy € 5,50
Aloe itremensis JAA 385 Itremo Mts € 6,50
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