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Red Data List of southern African plants. 2. Corrections and additions

C. HILTON-TAYLOR*

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INTRODUCTION

This update to the *Red Data List of southern African plants* (Hilton-Taylor 1996a) follows the same format as that used in the first update (Hilton-Taylor 1996b). However, a major change in the methodology used is the application of the new IUCN Red List categories and criteria (IUCN 1994). Wherever possible, all taxa added to the Red Data List and all those which have a change in status, have been evaluated using the new system in addition to assigning an old IUCN Red List category. The dual system of old and new IUCN categories will be maintained, until all taxa listed as threatened have been evaluated under the new system.

The new IUCN categories and criteria were developed to improve the objectivity in assessing the conservation status of species, thereby improving consistency between users. Although the new categories were developed after six years of research and broad consultation, numerous problems with implementation and interpretation have emerged since their adoption by the IUCN Council in 1994. At the IUCN World Conservation Congress held in Montréal in October 1996, the IUCN's Species Survival Commission (SSC) was requested to conduct a review of the new categories and criteria, especially their effectiveness and applicability to a wide range of organisms, habitats and threatening processes. Despite the problems encountered, the new criteria and categories were effectively applied to produce the *1996 IUCN Red List of threatened animals* (Baillie & Groombridge 1996). Botanists are now being encouraged to apply the new system to plants in order to identify what problems they might encounter with the new system. As a major contributor to the forthcoming *1997 IUCN Red List of threatened plants* (Walter & Gillett in press), the National Botanical Institute should lead the way in southern Africa.

The new categories and criteria will be briefly described here, so that the methodology, abbreviations and terminology used in the update below can be understood. This description must be used in conjunction with the official *IUCN Red List categories* document (IUCN 1994). The description also draws extensively on the summary published in Baillie & Groombridge (1996), on various guidelines prepared for workshops on the application of the new system (Baillie 1995, 1996; Jenkins 1996) and the discussions held during those workshops.

* Ecology and Conservation, National Botanical Institute, Private Bag X7, Claremont, 7735 Cape Town.
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At the outset, it is essential to note that the new IUCN categories and criteria are meant to be applied on a global scale to determine the current global conservation status of a taxon. They are not intended for use at a local, national or regional level, unless the taxon concerned is endemic to the area defined. The IUCN is currently developing a parallel system which can be applied at different biogeographic and geopolitical scales. This proviso is strictly adhered to in the assessments presented below.

NEW IUCN RED LIST CATEGORIES

There are eleven well-defined categories and subcategories in the new system. The definitions presented here are from the official document (IUCN 1994):

Extinct (EX)
A taxon is Extinct when there is no reasonable doubt that the last individual has died.

Extinct in the Wild (EW)
A taxon is Extinct in the Wild when it is known only to survive in cultivation, in captivity or as a naturalized population (or populations) well outside the past range. A taxon is presumed Extinct in the Wild when exhaustive surveys in known and/or expected habitat, at appropriate times, throughout its historic range have failed to record an individual. Surveys should be over a time frame appropriate to the taxon's life cycle and life form.

Critically Endangered (CR)
A taxon is Critically Endangered when it is facing an extremely high risk of extinction in the wild in the immediate future, as defined by any of the criteria A to E (see Table 1).

Endangered (EN)
A taxon is Endangered when it is not Critically Endangered but is facing high risk of extinction in the wild in the near future, as defined by any of the criteria A to E (see Table 1).

Vulnerable (VU)
A taxon is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium-term future, as defined by any of the criteria A to E (see Table 1).

Lower Risk (LR)
A taxon is Lower Risk when it has been evaluated and does not satisfy the criteria for any of the categories Critically Endangered, Endangered or Vulnerable. Taxa included in the Lower Risk category can be separated into three subcategories:

1. **Conservation Dependent (cd)**. Taxa which are the focus of a continuing taxon-specific or habitat-specific conservation programme targeted towards the taxon in question, the cessation of which would result in the taxon qualifying for one of the threatened categories above within a period of five years.
2. **Near Threatened (nt)**. Taxa which do not qualify for Conservation Dependent, but which are close to qualifying for Vulnerable.
3. **Least Concern (lc)**. Taxa which do not qualify for Conservation Dependent or Near Threatened.

Data Deficient (DD)
A taxon is Data Deficient when there is inadequate information to make a direct or indirect assessment of its risk of extinction based on distribution and/or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution is lacking. Data Deficient is therefore not a category of threat or Lower Risk. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and threatened status. If the range of a taxon is suspected to be relatively circumscribed, if a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

Not Evaluated (NE)
A taxon is Not Evaluated when it has not yet been assessed against the criteria.

It is important to note that these new categories are very different to those in the old system (Hilton-Taylor 1996a), so one cannot simply transfer a taxon from an

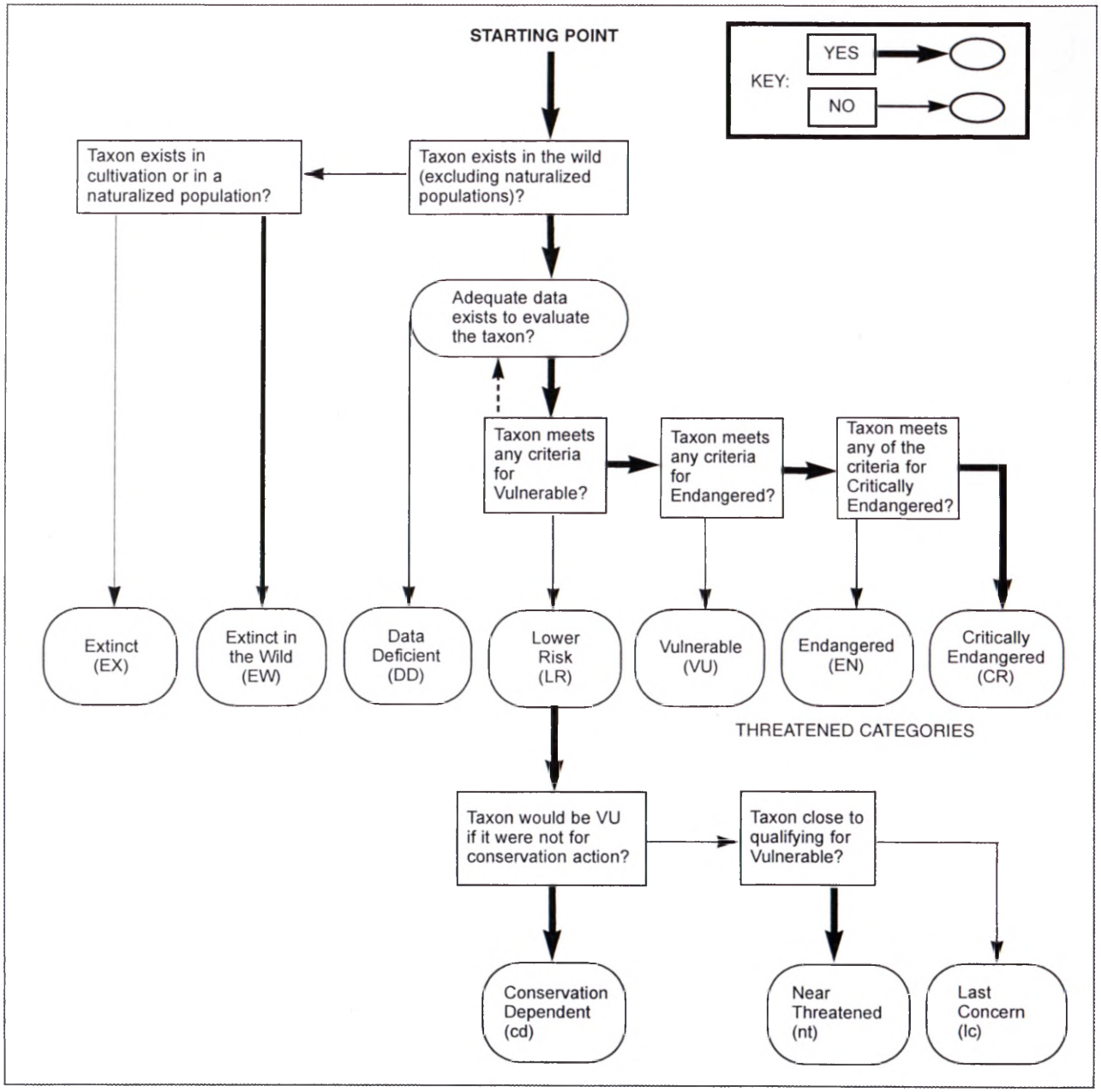

FIGURE 1.—Diagram (from Baillie 1995) to evaluate the current status of a specific taxon. If a taxon is not classified according to this process then it should be listed as Not Evaluated (NE).

old category to a new one without proceeding through the evaluation process (see Figure 1). The only category in the old system which may be regarded as analogous to one in the new system is Insufficiently Known (K). Provided no new information is available, taxa with this status can be transferred to Data Deficient (DD).

Figure 1 illustrates the process that may be followed in evaluating the status of a taxon, and Table 1 is a summary of the five criteria and many subcriteria which are used in assigning threatened status. To list a taxon in any of the categories of threat (Critically Endangered, Endangered and Vulnerable), only one of the five criteria (A to E) and required number of subcriteria need to be met. A taxon should, however, be ascribed as many criteria as are applicable for a specific category of threat. In assigning a status, all the criteria met should be specified. For example, if a taxon is evaluated to be Critically Endangered, its status could be recorded as follows: CR A2cd, B1+2de, C2a. Naturally many of the criteria for the lower categories of Endangered and Vulnerable would also be met in this case; these should not be specified. This listing of the criteria and subcriteria used, provides the reasoning for placing a taxon in a specific category, and if questioned, the reasoning can be re-examined.

Before starting the evaluation of any taxon it is important that the definitions of the following terms, as used in the criteria, must be clearly understood: population, sub-

TABLE 1.—Summary of New IUCN Categories and Criteria (from Baillie & Groombridge 1996)

Use any of the A to E criteria	Critically Endangered	Endangered	Vulnerable
A. Declining Population			
population decline rate at least	80% in 10 years or 3 generations	50% in 10 years or 3 generations	20% in 10 years or 3 generations
using either			
1. population reduction observed, estimated, inferred, or suspected in the past *or*			
2. population decline projected or suspected in the future based on:			
a. direct observation			
b. an index of abundance appropriate for the taxon			
c. a decline in area of occupancy, extent of occurrence and/or quality of habitat			
d. actual or potential levels of exploitation			
e. the effects of introduced taxa, hybridization, pathogens, pollutants, competitors, or parasites			
B. Small Distribution and Decline or Fluctuation			
Either extent of occurrence	< 100 km²	< 5 000 km²	< 20 000 km²
or area of occupancy	< 10 km²	< 500 km²	< 2 000 km²
and 2 of the following 3:			
1. either severely fragmented: (isolated subpopulations with a reduced probability of recolonization, if once extinct) or known to exist at a number of locations	= 1	≤ 5	≤ 10
2. continuing decline in any of the following:	any rate	any rate	any rate
a. extent of occurrence			
b. area of occupancy			
c. area, extent and/or quality of habitat			
d. number of locations or subpopulations			
e. number of mature individuals			
3. fluctuating in any of the following	> 1 order/mag.	> 1 order/mag.	> 1 order/mag.
a. extent of occurrence			
b. area of occupancy			
c. number of locations or subpopulations			
d. number of mature individuals			
C. Small Population Size and Decline			
Number of mature individuals and 1 of the following 2:	< 250	< 2 500	< 10 000
1. rapid decline rate	25% in 3 years or 1 generation	20% in 5 years or 2 generations	10% in 10 years or 3 generations
2. continuing decline and either:	any rate	any rate	any rate
a. fragmented or	all sub-pops ≤ 50	all sub-pops ≤ 250	all sub-pops ≤ 1 000
b. all individuals in a single subpopulation			
D. Very Small or Restricted			
Either 1, number of mature individuals	< 50	< 250	< 1 000
or 2, population is susceptible	(not applicable)	(not applicable)	area of occupancy < 100 km² or number of locations < 5
E. Quantitative Analysis			
Indicating the probability of extinction in the wild to be at least	50% in 10 years or 3 generations	20% in 20 years or 5 generations	10% in 100 years

population, mature individuals, generation, continuing decline, reduction, extreme fluctuation, severely fragmented, extent of occurrence, area of occupancy, location and quantitative analysis. Space does not permit an explanation here of all the terms used, so readers are referred to the official document (IUCN 1994). It is important though to note the difference between the terms population and subpopulation. The population is defined as the total number of individuals of the taxon (i.e. the global population) whereas subpopulations are geographically or otherwise distinct groups in the population between which there is little genetic exchange. In all cases the number of individuals refers to mature individuals, i.e. only those which are capable of reproduction.

As the new IUCN Red List categories have been applied by biologists working on widely different taxonomic groups, differences in interpretation and/or application of the new categories and criteria have emerged. It is important to document these deviations from the standards so that it is clear what is meant. For the assessments presented below there are two slight deviations:
1) Taxa which are known only from an old type collection or only from a couple of old collections, have in the past usually been allocated the status of Insufficiently Known (K) or Indeterminate (I). If the most recent collection was made more than fifty years ago and the taxon was recorded from an area which is well collected and frequently visited by botanists, then the taxon is classified as Extinct (EX) or Extinct in the Wild (EW) if there are plants in cultivation. In most cases there have been some attempts to relocate the taxon, but possibly not with the exact rigor described under the definition of Extinct. The possibility exists that these taxa, often known only from very poor fragmentary specimens, are of hybrid origin, or may be unusual forms of currently extant taxa. In most cases the material appears to be sufficiently distinct to warrant recognition at some taxon level. The loss of these taxa, although not necessarily true species or subspecies, represents a loss of genetic diversity and this loss should be recorded.
2) In using the category Lower Risk Conservation Dependent (LRcd), I have interpreted this to include the conservation (preservation) of a habitat and all the diversity within that habitat, i.e. a protected area like a nature reserve or national park, rather than as a conservation programme targeted specifically at the threatened taxon concerned. This interpretation assumes that the management programme for the area would not be deleterious to the threatened taxon.

The corrections presented here pertain to the information published in the Red Data List and its first update (Hilton-Taylor 1996a, b). The additions are new records which must be added to the List. Changes in the old IUCN Red List category apply to both the local and global level, unless otherwise specified. The new IUCN Red List category only applies to the global level. Although the new South African provinces are used here, abbreviations for the old provinces are also given so that the information is comparable to that in the published List (Hilton-Taylor 1996a).

CORRECTIONS

1. *Agathosma adenandriflora* Schltr., although susceptible to grazing in parts of its range (A. Bean pers. comm.), has a very wide distribution and is relatively safe (D. McDonald & F. Powrie pers. comms.), therefore its status should be changed from Insufficiently Known (K) to not threatened (nt). New IUCN Red List category: Lower Risk Least Concern (LRlc).

2. Under the additions to the Fabaceae in Hilton-Taylor (1996b), number 6 was given as '*Amphithalea ericifolia* (L.) Eckl. & Zeyh. subsp. *minima* Granby'. The subspecific name '*minima*' is incorrect and should be changed to '*minuta*'.

3. *Anginon* sp. nov. (*Marloth 10278* PRE). The Marloth specimen cited has been identified as *A. intermedium* I.Allison & B.-E.van Wyk ined. (Allison 1995). The conservation status of this unpublished species has not been assessed. The new species of *Anginon* which the compiler of the Red Data List had in mind is now called *A. fruticosum* I.Allison & B.-E.van Wyk ined. It is a widespread and common species and its status locally and globally should be changed to not threatened (nt) or Lower Risk Least Concern (LRlc).

4. *Angraecum chamaeanthus* Schltr., recorded as not threatened (nt) globally because of its wide distribution in Africa, is considered to be Rare (R) in Mpumalanga and Northern Province of the former Transvaal (T). The species is also known from a number of scattered localities in KwaZulu-Natal (Manning & Wright 1982; Manning 1983) where it is locally common. Status change: not threatened (nt) to Rare (R) in KwaZulu-Natal (KN). New IUCN Red List category: Lower Risk Least Concern (LRlc).

5. *Ansellia africana* Lindl. was accidentally listed as being globally Vulnerable (V). This should be changed to not threatened (nt) because although it is threatened over much of its range (Khayota 1993), there are still extensive subpopulations which appear to be safe. In terms of the new IUCN Red List categories Lower Risk Least Concern (LRlc) may appear to be the logical option, but in view of the continuing removal of plants from the wild by collectors, Lower Risk Near Threatened (LRnt) may be the better option.

6. *Athanasia capitata* (L.) L. once had a wide distribution occurring in Renosterveld vegetation on the lower mountain slopes and flats between Table Mountain and the Koue Bokkeveld Mountains, Western Cape (C). Today it is known only from a few Renosterveld remnants which are coming under increasing pressure from agricultural expansion (Low & Jones 1995). The status of this species should be changed from Indeterminate (I) to Vulnerable (V). New IUCN Red List category: Vulnerable (VU C2a, D2). It is quite likely that if subjected to a more detailed assessment that this species would be placed in a higher threatened category.

7. *Bolusiella maudiae* (Bolus) Schltr. was mistakenly thought to be endemic to KwaZulu-Natal (Stewart *et al.* 1982). The widespread tropical African species *B. imbricata* (Rolfe) Schltr., is now considered to be conspecific with *B. maudiae*, and is sunk into synonymy (Wood 1989). Under this expanded concept, *B. maudiae* is now known to occur in the Ivory Coast, Ghana, Uganda,

Kenya, Tanzania, Malawi, Zambia and South Africa. Its global status is therefore not threatened (nt) or Lower Risk Least Concern (LRlc).

8. The global status of *Catha edulis* (Vahl) Forssk. ex Endl. should be changed from a '?' to not threatened (nt) or Lower Risk Least Concern (LRlc).

9. The global status of *Cheirostylis gymnochiloides* (Ridley) Rchb.f. was incorrectly given as Insufficiently Known (K). This species has a fairly wide but disjunct range, being recorded from South Africa, Swaziland, Zimbabwe, Tanzania and Madagascar (Stewart *et al.* 1982; La Croix & Cribb 1995). It is unlikely to be threatened across this entire range, so its global status should be changed to not threatened (nt) or Lower Risk Least Concern (LRlc).

10. The status of *Corycium bifidum* Sond. should be changed from Indeterminate (I) to Endangered (E). This species occurs on the lowlands of the Western Cape (C) and is extremely difficult to find, as most subpopulations have been destroyed by agricultural activities, or the sites have been invaded by alien plants (W. Liltved pers. comm.). New IUCN Red List category: Endangered (EN B1+2cd).

11. The status of *Corycium microglossum* Lindl. should be changed from Vulnerable (V) to Endangered (E). It can no longer be found at many of its former localities in the Western Cape (C) because of habitat destruction (W. Liltved pers. comm.). The largest subpopulation is probably that at Riverlands Nature Reserve which comprises only 30 plants. New IUCN Red List category: Endangered (EN B1+2bcd).

12. *Corycium vestitum* Sweet is considered to be a synonym of *C. orobanchioides* (L.f.) Sw. (Linder in prep.), a common weedy species in the Western Cape (C). Its status locally and globally is not threatened (nt) or Lower Risk Least Concern (LRlc).

13. When *Craterostigma nanum* (E.Mey. ex Benth.) Wettst. var. *nanum* was included in the *Red Data List*, there was considerable confusion about the correct nomenclature, authorship of the name and distribution of the taxon. Fischer (1992) decided that *C. nanum* was conspecific with *C. plantagineum* Hochst. and placed it into synonymy of that species. *C. plantagineum* is a very common, widespread species occurring from India to North Yemen and across Africa from Ethiopia to South Africa. Its global status is therefore not threatened (nt), but the local status in the Eastern Cape (C) and KwaZulu-Natal (KN) remains unchanged, as all the known subpopulations appear to be those previously named as *C. nanum*. *C. plantagineum* should also be recorded as not threatened (nt) for Botswana (B), Namibia (N) and the former Transvaal (T) where it is recorded in the Northern Province, Mpumalanga and Gauteng. New IUCN Red List category: Lower Risk Least Concern (LRlc).

14. *Cryptadenia laxa* C.H.Wright was recently transferred to *Lachnaea laxa* (C.H.Wright) Beyers (Beyers 1997). Although only known from a few collections, most of which are old, it seems that this species occurs in a restricted area on high mountains in the Western Cape (C). From the collections it also appears to be a reseeder (J. Beyers pers. comm.) and would therefore be vulnerable to frequent fires. Although the status of this species should possibly be changed, this is not done here because the status of this and all the other *Lachnaea* species will be re-assessed once the taxonomic revision of the genus is complete.

15. *Cyphostemma* sp. nov. (*Abbott 1557* PRE) was recently described as *Cyphostemma rubroglandulosum* Retief & A.E.van Wyk (Retief & Van Wyk 1996). The status of Insufficiently Known (K) for KwaZulu-Natal (KN) should be changed to not threatened (nt) or Lower Risk Least Concern (LRlc), as it is considered to be fairly common and under no immediate threat (Retief & Van Wyk 1996).

16. For *Dinteranthus wilmotianus* L.Bolus subsp. *impunctatus* N.Sauer, the status of Rare (R) was omitted from under Namibia (P. Craven pers. comm.; Sauer 1978).

17. The status of *Disa begleyi* L.Bolus should be changed from Insufficiently Known (K) to Rare (R). This is a very localized species, known only from a few localities on the Hottentot's Holland Mountains, Western Cape (C). It is not possible to assign a category of threat to this species in terms of the new IUCN Red List categories, because the number and size of the subpopulations is not known. This species is only recorded after fire and there are currently very few records of it. New IUCN Red List category: Data Deficient (DD).

18. *Disa brachyceras* Lindl., although fairly widespread in the Western Cape (C), is a very scarce and seldom collected species (P. Linder pers. comm.). It is not entirely clear if the lack of records is due to it being inconspicuous (small size) or to rarity. However, given the number of recorded localities and its occurrence at high altitudes, the status of this species should be changed from Insufficiently Known (K) to Rare (R). New IUCN Red List category: a global status of Lower Risk Near Threatened (LRnt) is considered appropriate pending further population information.

19. *Disa brevipetala* H.P.Linder is known only from two collections made near Kleinmond, Western Cape (C) in 1942. As more than 50 years have elapsed without any further records of this species, the status should be changed from Rare (R) to Extinct (Ex). New IUCN Red List category: EX.

20. The status of *Disa cephalotes* Rchb.f. subsp. *frigida* (Schltr.) H.P.Linder, under KwaZulu-Natal (KN), should be changed from a '?' to Rare (R). This is a scarce high altitude taxon from the Drakensberg. New IUCN Red List category: Lower Risk Near Threatened (LRnt).

21. *Disa extinctoria* Rchb.f. has a fairly wide distribution in Mpumalanga and the Northern Province extending to Swaziland. Although it occurs in damp grasslands, a habitat under threat, there appear to be sufficient subpopulations in protected areas to ensure the safety of this species. For the former Transvaal (T) the status should be changed from Insufficiently Known (K) to Rare (R); and

for Swaziland (S) from Insufficiently Known (K) to Vulnerable (V), as only a single subpopulation is known from that area (K. Braun pers. comm.). The global status should be changed from Insufficiently Known (K) to Rare (R). New IUCN Red List category: Lower Risk Near Threatened (LRnt).

22. *Disa montana* Sond. is now known to occur in KwaZulu-Natal (KN) (Pietermaritzburg Orchid Society 1996). This species should be listed as Indeterminate (I) for that region until further information is obtained on its status. New IUCN Red List category: Data Deficient (DD).

23. *Disa ocellata* Bolus, a Rare (R) species on the Cape Peninsula (Hall & Ashton 1983), was considered to be not threatened (nt) in Hilton-Taylor (1996a) as it was also known from mountains around Paarl and from the Swartberg range (Linder 1981a). The subpopulations on Table Mountain are probably Extinct (P. Linder pers. comm.) and the species is known only from a few recent records, each comprising only one or two plants. The status of *D. ocellata* may well be Vulnerable; however, because of its apparently sporadic nature and its inconspicuous brown colouring, it should be listed as Rare (R). There is also a recent record from the Kammanassie Mountains (W. Liltved pers. comm.) which extends the known distribution of this species considerably to the east. New IUCN Red List category: Lower Risk Near Threatened (LRnt).

24. *Disa rhodantha* Schltr. also occurs in the Eastern Cape (C) where its status is Insufficiently Known (K). New IUCN Red List category: Data Deficient (DD).

25. *Disa sankeyi* Rolfe was listed as not threatened (nt) locally and globally because it was thought to have a fairly wide distribution. Current records, however, indicate that it is scarce throughout its range and can only reliably be found in a few localities. Its status in KwaZulu-Natal (KN) and Lesotho (L) should be changed to Rare (R). Its status in the Free State (O) should be changed to Indeterminate (I) as its occurrence in this province has not been confirmed since the type collection made by Sankey in the early 1900s somewhere near Harrismith (Linder 1981b). The species is also known to occur in the northeastern extremity of the Eastern Cape (C) where its status is also Rare (R). The global status is therefore Rare (R). New IUCN Red List category: Lower Risk Near Threatened (LRnt).

26. The status of *Disa subtenuicornis* H.P.Linder should be changed from Rare (R) to Vulnerable (V) as it is known only from a single subpopulation on the Langeberg above Riversdale, Western Cape (C). New IUCN Red List category: Vulnerable (VU D1, D2).

27. The area of occupancy for *Disa tenella* (L.f.) Sw. subsp. *tenella* has been greatly reduced in recent years by habitat destruction as a result of agriculture, urbanization and alien plant invasions. Its status should therefore be changed from Rare (R) to Vulnerable (V) as the species is increasingly being confined to small remnant sites. New IUCN Red List category: Vulnerable (VU B1+2bcd).

28. *Disa tysonii* Bolus has a very wide scattered distribution, which makes it difficult to evaluate its status. It would appear that the Lesotho (L) subpopulations are threatened by overgrazing (S. Talukdar pers. comm.); its status should therefore be changed from the hybrid category R/V to Vulnerable (V). In KwaZulu-Natal (KN), it appears to be fairly localized with low numbers in each subpopulation, so its status should be changed from a '?' to Rare (R). New IUCN Red List category: Lower Risk Near Threatened (LRnt).

29. A typesetting error in Hilton-Taylor (1996a) resulted in the name of the second species of *Disperis* being cut off. The full name should read as follows: *Disperis bolusiana* Schltr. ex Bolus subsp. *macrocorys* (Rolfe) J.C.Manning.

30. Recent records indicate that *Disperis concinna* Schltr. is fairly scarce throughout its range. Its status in KwaZulu-Natal (KN) should be changed from not threatened (nt) to Rare (R). The species is known only from a single collection in Mpumalanga (T) made late last century, hence its status there should be changed from Insufficiently Known (K) to Indeterminate (I) as it is at least very Rare if not Extinct in that area. Sightings of this species in the Wakkerstroom area have been reported by amateur orchidologists; however, no positive evidence of its occurrence has been presented. The species also occurs in eastern Zimbabwe where it is Rare. The global status should therefore be changed from Insufficiently Known (K) to Rare (R). New IUCN Red List category: Lower Risk Near Threatened (LRnt).

31. *Dombeya rotundifolia* (Hochst.) Planch. var. *velutina* I.Verd. is a synonym of *D. rotundifolia* (Hochst.) Planch. (Seyani 1991). It has a wide distribution across Africa (including Botswana, Free State, Gauteng, KwaZulu-Natal, Mpumalanga, Namibia, North-West province, Northern Province, Swaziland) and is not threatened (nt) in any part of its range. New IUCN Red List category: Lower Risk Least Concern (LRlc).

32. The global status of *Ensete ventricosum* (Welw.) Cheesman was incorrectly given as Indeterminate (I). This should be changed to not threatened (nt) or Lower Risk Least Concern (LRlc) as it is a widespread species occurring across Africa from Ethiopia to the northern parts of South Africa (Baker & Simmonds 1953). It is of local conservation concern in certain areas, but is not threatened everywhere.

33. *Eulophia holubii* Rolfe was thought to be endemic to the *FSA* region (Hall *et al.* 1980); however, it is now known to occur in Angola, Zambia and Zimbabwe (Hall in prep.). Although its status has not been evaluated in these other countries, it is unlikely to be threatened throughout its range. The global status should therefore be changed from Indeterminate (I) to not threatened (nt) or Lower Risk Least Concern (LRlc).

34. *Eulophia leachii* Greatrex ex A.V.Hall has a highly scattered distribution, occurring in Namibia, South Africa (KwaZulu-Natal, Mpumalanga, Northern Province) and Zimbabwe. In all these regions, only a few localities are known although the species was recorded as forming large colonies (Hall 1965). Many of these localities have been transformed by agricultural activities in recent years. The global status was given as

Vulnerable (V), but as the status in most of the above areas is Indeterminate (I) the global status should also be changed to this. New IUCN Red List category: Data Deficient (DD).

35. *Euphorbia berotica* N.E.Br. is not endemic to the *FSA* region; it occurs in Angola where, judging by its scattered distribution, it appears to be Rare (R) (Leach 1975).

36. A subspecies of *Euphorbia grandicornis* Goebel ex N.E.Br. (subsp. *sejuncta* L.C.Leach) occurs in Mozambique, therefore the name of the taxon listed should be corrected to subsp. *grandicornis*. This taxon also occurs in Mpumalanga and on the borders of the Northern Province (T) where it is considered to be not threatened (nt). New IUCN Red List category: Lower Risk Least Concern (LRlc).

37. *Euphorbia hottentota* Marloth also occurs in Namibia (N) (Williamson 1996) where it is considered to be Rare (R).

38. For *Gardenia thunbergia* L.f., the author name should be changed from L.f. to Thunb., as *G. thunbergia* L.f. is a later homonym.

39. The status of *Habenaria bicolor* Conrath & Kraenzl. in Swaziland (S) should be changed from Insufficiently Known (K) to Indeterminate (I) as there appear to be no recent records from that area. The species also occurs in Zimbabwe where it is Rare (R), hence its global status remains unchanged.

40. The status of *Habenaria kraenzliniana* Schltr. in KwaZulu-Natal (KN) should be changed from a '?' to Insufficiently Known (K). There appear to be no recent collections of this species from that area, but further information is required before assigning a higher threatened status.

41. In Hilton-Taylor (1996b) the spelling of *Haworthia mcmurtryi* C.L.Scott was corrected to *H. macmurtryi* in accordance with ICBN Article 60C.4. However, Scott (1996) correctly points out that this is not an Article but a Recommendation and that because he intended the name to be spelt without the 'a', *mcmurtryi* is orthographically correct.

42. The status of *Herschelianthe forcipata* (Schltr.) Rauschert should be changed from Indeterminate (I) to Extinct (Ex), as it has not been recorded again since the type collection was made somewhere in the southern Cape (C) last century. New IUCN Red List category: EX.

43. The status of *Herschelianthe lugens* (Bolus) Rauschert var. *nigrescens* (H.P.Linder) N.C.Anthony should be changed from Indeterminate (I) to Endangered (E) as indicated by Everard (1988). This taxon is known only from a single locality in the Eastern Cape (C) comprising one subpopulation of probably less than 50 plants (Linder 1989). The population was protected by the owners (Linder 1989), but any change in ownership and subsequent development would result in the extinction of this taxon. New IUCN Red List category: could be Critically Endangered, but as no recent population information is available it is best classified as Endangered (EN C2b, D).

44. The status of *Herschelianthe newdigateae* (L.Bolus) N.C.Anthony should be changed from Insufficiently Known (K) to Vulnerable (V). The species may even be Endangered as it is only known from a few collections made in the area between Nature's Valley and Plettenberg Bay, Eastern Cape (C). Expanding developments in this area have probably affected this species. New IUCN Red List category: Vulnerable (VU D1, D2).

45. *Herschelianthe venusta* (Bolus) Rauschert has a wide but very disjunct distribution, being recorded in the Western Cape (C) from the Cape Peninsula and Betty's Bay–Hermanus area, and then on the Hogsback Mountains in the Eastern Cape. The Cape Peninsula subpopulations are probably Extinct because of urban expansion and the Betty's Bay–Hermanus subpopulations have also been severely affected by coastal developments. No additional records have been obtained from the Eastern Cape. The status of this species should be changed from Insufficiently Known (K) to Vulnerable (V). New IUCN Red List category: Vulnerable (VU D1, D2).

46. *Holothrix culveri* (Schltr.) Bolus is known only from the type collection made by Culver in September 1890 near Barberton in Mpumalanga (Immelman 1996). As this distinctive species has not been recollected for more than fifty years, its status locally (T) and globally should be changed from Insufficiently Known (K) to Extinct (Ex). New IUCN Red List category: EX.

47. *Holothrix longicornu* G.J.Lewis, which apparently occurred in the Port Elizabeth area of the Eastern Cape (C), has not been recollected for more than fifty years (Immelman 1996). The Port Elizabeth area has been relatively well explored by botanists, and as much of the area has been transformed by urban developments, its status locally and globally should be changed from Insufficiently Known (K) to Extinct (Ex). New IUCN Red List category: EX.

48. The occurrence of both *Holothrix macowaniana* Rchb.f. and *H. micrantha* Schltr. in Zimbabwe (Grosvenor 1976; La Croix & Cribb 1995), was overlooked in the previous Red Data List. They are therefore not endemic to the *FSA* region. The status of both species in Zimbabwe is Insufficiently Known (K); the global status therefore remains unchanged.

49. *Holothrix majubensis* C. & R.H.Archer ined. has now been published (Archer & Archer 1996); the 'ined.' portion can therefore be deleted.

50. The global status of *Holothrix randii* Rendle should be changed from Insufficiently Known (K) to not threatened (nt) or Lower Risk Least Concern (LRlc). The species is known to occur in Zimbabwe (where it appears to be fairly scarce) and in Kenya and Tanzania (La Croix & Cribb 1995).

51. The presence of *Holothrix villosa* Lindl. var. *condensata* (Sond.) Immelman in the Transvaal (T) as indicated by the '?' and following Arnold & De Wet (1993), is incorrect and should be deleted (Immelman 1996).

52. *Imitaria muirii* N.E.Br. was accidentally listed and should be deleted. It is a synonym of *Gibbaeum nebrownii* Tischer, which is listed as Insufficiently Known (K).

53. *Lobostemon bolusii* Levyns and *L. inconspicuus* Levyns are considered to be conspecific with *L. capitatus* (L.) H.Buek (M. Buys pers. comm.). Although this species has a fairly wide distribution it is threatened throughout its range by habitat destruction (M. Buys pers. comm.). It is currently known only from a few very small groups of plants on the Tygerberg Hills (J. Wood pers. comm.), a single subpopulation near Wellington, a subpopulation on the Gordon's Bay flats (= *L. bolusii*) which is probably Extinct and a few scattered individuals (= *L. inconspicuus*) near Bredasdorp (M. Buys pers. comm.). This Western Cape (C) species remains listed as Vulnerable (V). New IUCN Red List category: Endangered (EN C2a, D).

54. The status of *Lobostemon collinus* Schltr. ex C.H.Wright should be changed from Rare (R) to Endangered (E) as it is currently only known from 20–30 plants in a single subpopulation straddling two farms in the Bredasdorp area (M. Buys pers. comm.). New IUCN Red List category: Critically Endangered (CR C2b, D).

55. The status of *Lobostemon gracilis* Levyns should be changed from Insufficiently Known (K) to Vulnerable (V). It is currently only known from a single subpopulation comprising 50–60 plants near Robertson (M. Buys pers. comm.). The species is not given a higher status under the old IUCN system, because the subpopulation appears to be relatively secure from agricultural activities, and other subpopulations may still survive elsewhere. However, any agricultural activity in the area would rapidly change the *status quo*. The type locality for this species lies under the Brandvlei Dam (M. Buys pers. comm.). New IUCN Red List category: Endangered (EN C2b, D).

56. *Lobostemon horridus* Levyns is now considered to be conspecific with *L. paniculatus* (Thunb.) H.Buek (Buys & Van der Walt 1997). *L. paniculatus* is a common fairly widespread species in the Western Cape (C) which should be listed as not threatened (nt) or Lower Risk Least Concern (LRlc).

57. The status of *Lobostemon lucidus* (Lehm.) H.Buek should be changed from Insufficiently Known (K) to Rare (R). Only two subpopulations are known, but both are large and one is in the De Hoop Nature Reserve (M. Buys pers. comm.). New IUCN Red List category: Lower Risk Conservation Dependent (LRcd) is probably appropriate, provided that the total number of mature plants exceeds 1000 individuals.

58. The status of *Lobostemon muirii* Levyns should be changed from Insufficiently Known (K) to Rare (R). Only two subpopulations of this species are currently known, both on the northern slopes of the Langeberg. Although the populations are small they do not appear to be under any immediate threat (M. Buys & D. McDonald pers. comms.). New IUCN Red List category: Vulnerable (VU C2a, D2).

59. *Merremia dissecta* (Jacq.) Hallier f. is incorrectly listed as an endemic Rare (R) species from KwaZulu-Natal (KN). The occurrence of this taxon is an error which has been perpetuated since the publication of *The Flora of Natal* (Ross 1972: 295). It is an introduced species from the Americas which was grown in the Durban Botanic Garden (Welman 1997) and should be regarded as not threatened (nt). A new IUCN Red List category is not appropriate here as the species is not indigenous to the region.

60. The status of *Monadenia pygmaea* (Bolus) T.Durand & Schinz should be changed from Insufficiently Known (K) to Rare (R). It occurs mainly on the flats between the Cape Peninsula and Bredasdorp. Much of the lowland habitat is lost or disappearing, but good subpopulations can still be found in some areas after a fire. New IUCN Red List category: Lower Risk Near Threatened (LRnt); as habitat destruction continues, it will probably move into the Vulnerable category in the near future.

61. *Mossia intervallaris* (L.Bolus) N.E.Br. was recorded in Hilton-Taylor (1996a) as occurring in the Transvaal only. This is incorrect, as there are historical and recent records from other provinces (Smith *et al.* 1997). Unfortunately, Smith *et al.* (1997) do not provide any information on the number or size of the extant populations, but they do state that they consider it to be a Rare species which is at risk from unexpected threats such as extensive granite mining. Given this information, the status and distribution of the species should be amended as follows: Rare in the Eastern Cape (C), Lesotho (L), Free State (O), Gauteng and Mpumalanga (T). It is difficult to evaluate the species in terms of the new IUCN Red List categories; however, given its fairly wide distribution range and the high probability that it may occur at other sites and that it is known to occur in a conservation area, its classification as Lower Risk Near Threatened (LRnt) seems appropriate. Field assessment of all the known localities is required to confirm this. It should also be noted that a proposal to conserve the generic and species names against earlier homonyms has recently been published (Smith & Hartzer 1997).

62. *Nemesia fruticans* (Thunb.) Benth. also occurs in Botswana (B), Lesotho (L), Namibia (N) and Zimbabwe and is therefore not endemic to the *FSA* region (Philcox 1990: 11). It is also not threatened (nt) in all these countries. New IUCN Red List category: Lower Risk Least Concern (LRlc).

63. The spelling of the specific name of *Nerine masonorum* L.Bolus is an orthographic error and should be changed to *N. masoniorum* in accordance with ICBN Article 60.11. This orthographic error was in fact corrected by Barker (1935), but overlooked subsequently. This species is known currently only from a single locality in the Eastern Cape (C) where it is very abundant. Unfortunately this locality is being placed under increasing threat because of an expanding settlement nearby (E. Cloete pers. comm.). The species is, however, known to have occurred at other sites in the region and these need to be investigated before changing the status to a higher category.

64. The status of *Nerine platypetala* MacNeil (note author correction), for Mpumalanga (T), should be chang-

ed from a ? to Rare (R) as, although abundant, it is confined to wetlands in a very localized area (R. Archer pers. comm.). Part of the population is in a conservation area. The future of the species is very dependent on a continued wetlands conservation programme for the area (Craib 1996). The occurrence of this species in the Free State (O) has not been reconfirmed, so its status there and globally remains unchanged. New IUCN Red List category: Lower Risk Conservation Dependent (LRcd).

65. The spelling of *Othonna cakilefolia* DC. is incorrect and should be corrected to *O. cakilifolia* (Rowley 1994).

66. According to Rowley (1994), *Othonna pinnatilobata* Sch.Bip. is a synonym of *O. retrofracta* Jacq. The latter is the earliest name for what is probably a single widespread but highly variable species, rather than a number of separate species (Rowley 1994). Its status is not threatened (nt) locally (the species also occurs in Namibia) and globally. New IUCN Red List category: Lower Risk Least Concern (LRlc).

67. The status of *Oxalis comptonii* Salter in the Western Cape (C) should be changed from Insufficiently Known (K) to not threatened (nt). N. Helme (pers. comm.) has found that the species is fairly abundant (more than 1000 plants) and frequently co-occurs with *O. oculifera* (see below). New IUCN Red List category: provisionally classified as Lower Risk Near Threatened (LRnt) as it is not as abundant as *O. oculifera* and appears to be more restricted in its distribution.

68. *Oxalis extensa* Salter also occurs in Namibia (P. Craven pers. comm.) where its status is also Insufficiently Known (K). New IUCN Red List category: Data Deficient (DD).

69. The status of *Oxalis oculifera* E.G.H.Oliv. should be changed from Rare (R) to not threatened (nt). This species was known until recently only from the type locality, however, recent field work by Nick Helme on the Matsikamma Mountain in the Western Cape (C), has shown this to be a very common and abundant species. N. Helme (pers. comm.) estimates that there are over 10 000 plants and that many of these are safe from agricultural activities, particularly ploughing, as they grow in cracks and gaps between the extensive sandstone rock sheets found on the mountain. In terms of the new IUCN Red List categories, the species could qualify as Vulnerable (VU) under the D2 criterion because of its very restricted area of occupancy. However, because of the large numbers present, its capacity to reproduce vegetatively and because agricultural activities, including trampling by livestock, are unlikely to have much impact, the species is listed as Lower Risk Least Concern (LRlc).

70. *Ozoroa insignis* Delile subsp. *latifolia* (Engl.) R.Fern. is not endemic to the *FSA* region as it is also recorded from Angola, Cabinda and the Congo Republic (Fernandes 1966). Its status remains unchanged.

71. The status of *Pachites appressa* Lindl. should be changed from Indeterminate (I) to Rare (R). This scarce species is confined to very localized places on mountain slopes in the Western Cape (C) but it can appear in fairly large numbers after fire. As no population size estimates are available it is difficult to evaluate this species using the new IUCN Red List categories; however, Lower Risk Near Threatened (LRnt) may be the most appropriate for now.

72. The name *Pelargonium namaquense* Knuth should be changed to *P. bubonifolium* (Andrews) Pers. (Marais 1997). Although this species is fairly abundant, its status remains unchanged for the present because of its very localized occurrence.

73. *Petalidium crispum* A.Meeuse ex P.G.Mey. also occurs in Angola (P. Craven pers. comm.) and is therefore not endemic to the *FSA* region. Very little information on the species in Angola is available; its status is therefore also Insufficiently Known (K). New IUCN Red List category: Data Deficient (DD).

74. *Platylepis glandulosa* (Lindl.) Rchb.f. was incorrectly listed as *P. glandulosa* Rchb.f. The author names should be corrected.

75. *Polygala esterae* Chodat is considered by Paiva (1993) to be a synonym of *Polygala gazensis* Baker f., a widespread species recorded from Zimbabwe, Mozambique, KwaZulu-Natal (KN) and the Eastern Cape (C). Judging from the number of herbarium collections it would appear to be not threatened (nt) globally and locally, although its status in some areas may require reassessment. New IUCN Red List category: Lower Risk Least Concern (LRlc).

76. *Polygala galpinii* Hook.f. will be transferred to *Heterosamara galpinii* (Hook.f.) Paiva ined. (Paiva 1993). This is a poorly known species and until its status in Mpumalanga (T) and Swaziland (S) is checked, its global status should be corrected to Insufficiently Known (K). New IUCN Red List category: Data Deficient (DD).

77. *Polygala lasiosepala* Levyns is also recorded from the Lüderitz area in Namibia (N) (Paiva 1993). As only one collection is known so far, its status in Namibia should be Insufficiently Known (K). This species has a very unusual disjunct distribution pattern being recorded from Lüderitz, the Kamiesberg and from near Clanwilliam. All the collections are old, dating from last or early this century. New IUCN Red List category: Data Deficient (DD).

78. Paiva (1993) proposed that *Polygala microlopha* DC. var. *gracilis* Levyns be given specific status and has named it as *Polygala levynsiana* Paiva ined. Its status remains unchanged.

79. *Polygala natalensis* Chodat is considered by Paiva (1993) to be a synonym of *Polygala serpentaria* Eckl. & Zeyh. The status of this species is difficult to evaluate from the herbarium collections as none of them have been curated according to Paiva's revision. It appears to have a fairly wide but scattered distribution occurring in the Eastern Cape (C), KwaZulu-Natal (KN), Free State (O) and in Gauteng, Mpumalanga and the Northern Province of the former Transvaal (T). The occurrence of this species in threatened grassland areas

and the fact that it is offered for sale at informal medicinal plant markets in Durban (R. Williams pers. comm.) indicates that it could still be of conservation concern. The species also occurs in bushveld areas where it appears to be relatively safe (K. Balkwill pers. comm.). The local status in all the above regions and globally should therefore be changed to Insufficiently Known (K) until further information is available for assessment. New IUCN Red List category: Data Deficient (DD).

80. *Polystachya albescens* Ridl. subsp. *imbricata* (Rolfe) Summerh. has been discovered in forests in southern KwaZulu-Natal (KN) (Pietermaritzburg Orchid Society 1996) and it should be listed as Rare (R) for that region.

81. The status of *Polystachya zuluensis* L.Bolus in Swaziland (S) should be changed from Insufficiently Known (K) to Indeterminate (I). This Lebombo endemic is known from at least two subpopulations in Swaziland and should probably be listed as Rare, but an assessment of the species in the field is required.

82. *Psoralea abbottii* C.H.Stirt. ined. is now published (Stirton 1995) and the 'ined.' portion can be deleted. The status of this species remains Rare (R) following the old IUCN Red List categories, but in terms of the new categories it would be listed as Lower Risk Conservation Dependent (LRcd).

83. The Eastern Cape (C) subpopulation of *Raspalia trigyna* (Schltr.) Dummer is now Extinct (Ex) and the KwaZulu-Natal (KN) subpopulation was also thought to be heading the same way, as the only wild plant appeared senescent (Arkell 1995). However, Arkell (1996) has subsequently discovered another healthy individual. Attempts to cross-pollinate the healthy wild plant with the four plants propagated from cuttings from the Eastern Cape subpopulation and planted in the Umtamvuna Nature Reserve, have been unsuccessful so far (J. de Lange pers. comm.). Attempts are now being made to root some more cuttings from the healthy wild plant, but initial attempts have failed (J. de Lange pers. comm.). New IUCN Red List category: Critically Endangered (CR A1a, B1+2bde, C2a, D).

84. The status of *Satyrium microrrhynchum* Schltr. in KwaZulu-Natal (KN), should be changed from a '?' to Rare (R). There are an increasing number of records from KwaZulu-Natal, but usually only of single plants. This is a high altitude species occurring along the Drakensberg escarpment from the Eastern Cape (C) to Mpumalanga (T). Records in the latter area are also very scarce; therefore its status under 'T' should be Insufficiently Known (K). New IUCN Red List category: Data Deficient (DD).

85. *Satyrium princeps* Bolus occurs on coastal dunes between Wilderness and Port Alfred in the Eastern Cape (C), however, most of the subpopulations have been destroyed by coastal developments or through invasions by alien plant species (J. Vlok & W. Liltved pers. comms.). The status should be changed from Indeterminate (I) to Vulnerable (V). New IUCN Red List category: Vulnerable (VU B1+2acd). This species could well become Critically Endangered if no subpopulations occur in a conservation area.

86. Hall (1982) considered *Satyrium rhodanthum* Schltr. to be a hybrid species (*Satyrium longicauda* Lindl. var. *longicauda* × *S. neglectum* Schltr. subsp. *woodii* (Schltr.) A.V.Hall) because it was only known from a single subpopulation at the time. Two new subpopulations have since been found (G. Mardon pers. comm.) some distance from the first, and the available evidence suggests that *S. rhodanthum* should be recognized as a true species (H. Kurzweil pers. comm.). The original subpopulation and one of the other new ones have both been destroyed by afforestation for commercial timber plantations (G. Mardon pers. comm.). The only subpopulation known to survive comprises approximately 1000 plants, and it too is under threat from afforestation (G. Mardon pers. comm.). The name of this species should be reinstated and its status changed from not threatened (nt) to Endangered (E) in KwaZulu-Natal (KN) and globally. New IUCN Red List category: Endangered (EN B1+B2abde, C2b).

87. The status of *Schizochilus cecilii* Rolfe subsp. *transvaalensis* (Rolfe) H.P.Linder should be changed from Insufficiently Known (K) to Rare (R). Although it has a fairly wide distribution along the Drakensberg escarpment in Mpumalanga and the Northern Province (T) some subpopulations have been affected by afforestation. New IUCN Red List category: Lower Risk Conservation Dependent (LRcd). If the escarpment is not protected against further afforestation and development this species will rapidly move into a higher category.

88. The status of *Schizochilus crenulatus* H.P.Linder should be changed from Insufficiently Known (K) to Vulnerable (V). This species has a restricted distribution, occurring in a small area on the Drakensberg escarpment in Mpumalanga (T). It grows in a very sensitive habitat on the edges of Black Reef Quartzite rock flushes, in damp conditions, usually in association with moss (Linder 1980). Afforestation of the surrounding grasslands will undoubtedly affect these seepages as will further tourist developments at places such as Mac Mac Falls. New IUCN Red List category: Vulnerable (VU D2).

89. *Schizochilus lilacinus* Schelpe ex H.P.Linder, confined to a small area near Lydenburg, Mpumalanga (T), should have its status changed from Insufficiently Known (K) to Vulnerable (V). Afforestation of the grasslands in this area is posing a threat to this species. New IUCN Red List category: Vulnerable (VU D2).

90. A series of short notes culminating in a recent overview of the taxa in the genus *Schwantesia* (Zimmermann 1996a) has enabled a re-assessment of the status of the taxa listed as threatened. *S. acutipetala* L.Bolus, although abundant, occurs in a fairly confined area, so its status should be changed both locally and globally from the hybrid category of Rare/Vulnerable (R/V) to Rare (R) or Lower Risk Near Threatened (LRnt). The status of *S. borcherdsii* L.Bolus, *S. pillansii* L.Bolus and *S. ruedebuschii* Dinter remains unchanged. The information and status for *S. succumbens* (Dinter) Dinter, need to be corrected. *S. speciosa* L.Bolus, was listed as a synonym of *S. succumbens* (Hilton-Taylor 1996a), but until conclusive evidence for this conspecificity is obtained, the two taxa should rather be consid-

ered separately (Zimmermann 1996a). *S. succumbens* is a relatively poorly known species which at this stage appears to be endemic to Namibia (N) (Zimmermann 1996a). Its scarcity (it has only ever been collected twice, once in 1924 and again in 1994) and localized nature indicate that it should be given a status of Rare (R). *S. speciosa* on the other hand, was previously considered to be threatened (Hall & Veldhuis 1985), but is now known to occur in fairly large subpopulations in the Northern Cape (C) and should therefore be regarded as not threatened (nt) or Lower Risk Least Concern (LRlc). The search for *S. succumbens* resulted in the discovery of a new and scarce species which is added to the list (see below). *S. triebneri* L.Bolus, is considered to be a synonym of *S. pillansii* (Zimmermann 1996a), so should be deleted from the list. As complete information on population numbers, sizes, and distribution is not yet available, all these taxa have not been evaluated in terms of the new IUCN Red List categories.

91. The name *Senecio expansus* Harv. was found to be a later homonym and the species was therefore renamed as *S. anapetes* C.Jeffrey (Jeffrey 1992). The name should be corrected and its status remains unchanged.

92. The status of *Siphonochilus aethiopicus* (Schweinf.) B.L.Burtt under KwaZulu-Natal (KN) should be changed from Endangered (E) to Extinct (Ex) as it has not been collected in the wild since the turn of this century (Gordon-Gray *et al.* 1989). It seems likely that *S. aethiopicus* was introduced into Swaziland and KwaZulu-Natal as a cultivated plant (Williams *et al.* 1996).

93. The taxonomic affinities of *Sonderina streyi* Merxm. have been investigated (Allison 1995) and the species is now included under the genus *Anginon* as *A. streyi* (Merxm.) Allison & B.-E.van Wyk ined. Its status remains unchanged.

94. *Staavia brownii* Dummer, was known until recently from only four old collections (the last being in 1952), two of which were from unknown localities. Attempts to relocate the species by several botanists proved unsuccessful and it was listed as Extinct (Ex) in Hilton-Taylor (1996a). It is interesting to note that Dummer in his description of the species (1912: 29) commented '...it is significant that in recent years this plant has not been rediscovered, despite its reputed size and its occurrence on the Hottentot's Holland Range, a locality favoured by many field-botanists, which suggests that, like many other endemic types, it has suffered extinction'. A new subpopulation of approximately 400 plants was recently discovered by Mark Johns in a 3 ha area within the boundaries of the Kogelberg Nature Reserve, Western Cape (C). The plants, unless in flower, are very inconspicuous, and could easily be overlooked, so there is a strong possibility that other subpopulations may exist. Unfortunately, the area where the species was found is an ideal site for a dam and the species would be inundated if such a dam were ever built. Despite this exciting rediscovery, the status of the species is by no means secure and its status should only be changed from Extinct (Ex) to Endangered (E). New IUCN Red List category: Endangered (EN C2a).

95. The status of *Thesium davidsoniae* Brenan should be changed from Insufficiently Known (K) to Rare (R). This is a dolomite endemic from the Pilgrim's Rest area in the Northern Province (T). Although it is very localized it is apparently fairly common and under no immediate threat (P. Burgonye pers. comm.). New IUCN Red List category: Lower Risk Near Threatened (LRnt); any change in land use could push this species into a threatened category.

96. The status of *Thesium gracilentum* N.E.Br. under Swaziland (S) should be changed from a '?' to Insufficiently Known (K).

97. The status of *Thesium jeaniae* Brenan under KwaZulu-Natal (KN) should be changed from a '?' to Insufficiently Known (K). This species was erroneously recorded as occurring in the Transvaal, so the 'K' under 'T' should be deleted. New IUCN Red List category: Data Deficient (DD).

98. *Thesium leptocaule* Sond. was thought to be only known from the Uitenhage–Port Elizabeth area in the Eastern Cape, but according to herbarium records is now considered to be widespread and fairly common in both the Eastern and Western Cape (C). Its status should be changed from Insufficiently Known (K) to not threatened (nt). New IUCN Red List category: Lower Risk Least Concern (LRlc).

99. *Tridentea marientalensis* (Nel) L.C.Leach subsp. *marientalensis* also occurs in Namibia (N) where it is not threatened (nt) (P. Craven pers. comm.) and in Botswana (B) where its status is not known (?). Its global status remains unchanged. New IUCN Red List category: Lower Risk Least Concern (LRlc).

100. The status of *Tritoniopsis elongata* (L.Bolus) G.J.Lewis should be changed from Indeterminate (I) to Vulnerable (V). *T. elongata* is confined to only a few Renosterveld fragments on the Western Cape (C) lowlands in the Paarl–Wellington area. One of these remnant patches at Joostenbergkloof was recently ploughed (Hilton-Taylor 1996c). New IUCN Red List Category: Vulnerable (VU B1+2bcd, D2).

101. *Tromotriche aperta* (Masson) Sweet also occurs in Namibia (N), but as it is only known from a single locality, its status for that region is Rare (R). The global status remains unchanged. New IUCN Red List category: Lower Risk Least Concern (LRlc).

102. The occurrence of *Tromotriche ruschiana* (Dinter) Bruyns in the Cape (C) is incorrect and should be deleted. The species is endemic to Namibia (N).

103. The description of *Tylecodon sulphureus* (Toelken) Toelken var. *armianus* Van Jaarsv. was overlooked when compiling the *Red Data List* (Van Jaarsveld 1990). The species listed in Hilton-Taylor (1996a) as Rare (R) is the typical variety and because it is fairly common and not under any threat (E. van Jaarsveld pers. comm.), should be reclassified as not threatened (nt). *T sulphureus* var. *armianus* is also not threatened (E. van Jaarsveld pers. comm.). The new IUCN Red List category for both of these taxa is Lower Risk Least Concern (LRlc).

104. The synonym *Urginea minor* A.V.Duthie was accidentally listed in Hilton-Taylor (1996a) as Indeterminate (I) despite being included in the list of synonyms (see Appendix 3). It should therefore be deleted. The correct entry is under *Drimia minor* (A.V.Duthie) Jessop.

105. *Watsonia strictiflora* Ker Gawl. is known to have occurred in Renosterveld vegetation at several sites on the lower mountain slopes and flats between Stellenbosch, Durbanville and Paarl, Western Cape (C). As most of the localities where the species previously occurred had been transformed by cultivation and urban development, Hall & Veldhuis (1985) listed the status of this species as Unknown (K). Following the information presented in Goldblatt (1989) and the lack of recent collections, Hilton-Taylor (1996a) changed the status to Indeterminate as it was certainly highly Endangered if not Extinct in the wild. Dr Clive McDowell recently discovered a small subpopulation of *W. strictiflora* on the farm Joostenbergkloof (see Hilton-Taylor 1997). A subsequent visit to the site by Dr Peter Goldblatt and myself confirmed this discovery and we counted approximately 200 plants in the remaining Renosterveld fragments. The future of these fragments is very precarious at present as the owner has requested permission to continue with the agricultural development of the land. If the farmer is granted permission, only a few plants on the rocky outcrops may be protected from ploughing activities. The status of this species should be changed to Endangered (E) . New IUCN Red List category: Critically Endangered (CR B1+2bcde, C2a).

106. A specimen of *Zeuxine africana* Rchb.f. was recently collected in Botswana (La Croix & Cribb 1995), thereby extending the known distribution of this enigmatic species (also recorded from Angola, Nigeria and South Africa). Its status in Botswana (B) should be recorded as Insufficiently Known (K). In all cases, the species is only known from one or two collections, indicating its possible rarity. The global status should be changed from Indeterminate (I) to Insufficiently Known (K) pending further information. New IUCN Red List category: Data Deficient (DD).

ADDITIONS

Aizoaceae

1. *Schwantesia constanceae* N.Zimm. is a Rare (R) species known only from one locality near Warmbad in southern Namibia (Zimmermann 1996b). New IUCN Red List category: Vulnerable (VU D1+2).

Apiaceae

2. *Anginon tenuior* I.Allison & B.-E.van Wyk ined. is a Vulnerable (V) species recorded only from the Oudeberg Pass area near Montagu, Western Cape (C) (Allison 1995). It was possibly once widespread in Renosterveld, but only a single subpopulation of approximately 30 plants is known today (B.-E. van Wyk pers. comm.). New IUCN Red List category: this species qualifies for Critically Endangered (CR C2a, D), however, the subpopulation seems fairly secure, therefore Endangered (EN C2a, D) is probably a better reflection.

3. *Anginon ternatum* I.Allison & B.-E.van Wyk ined. is a Vulnerable (V) species known only from two localities (Gifberg and Heerenlogementsberg) in the Western Cape (C) (Allison 1995). The Gifberg subpopulations have probably been affected by agricultural activities, as only a single small subpopulation is known from there today and no plants could be found at Heerenlogementsberg during a recent survey (B.-E. van Wyk pers. comm.). New IUCN Red List category: Vulnerable (VU B1+2bcde, C2a, D1+2).

Ericaceae

4. *Stokoeanthus chionophilus* E.G.H.Oliv. is a Vulnerable (V) species confined to a single locality on the Hottentot's Holland Mountains above Somerset West, Western Cape (C). There are two subpopulations, one on the lower slopes comprising a few scattered plants and a much larger one 110 m higher up the slope (Oliver 1976). In total there are probably fewer than 1000 plants of this reseeding species (E. Oliver pers. comm.). Although safe from most human activities, this species is susceptible to frequent fires and has been burnt at least three times in the last fifteen years (E. Oliver pers. comm.). A third subpopulation was probably destroyed by fire. New IUCN Red List category: Vulnerable (VU C2a, D1+2).

Fabaceae

5. *Liparia racemosa* A.L.Schutte ined. is a Rare (R) species from the Great Swartberg Mountains in the Western Cape (C). Although a high altitude species, it is sensitive to frequent burning (Schutte 1995). New IUCN Red List category: Vulnerable (VU D2).

Orchidaceae

6. *Disa alticola* H.P.Linder, is a Vulnerable (V) species known only from a few localities on the Drakensberg escarpment between Sabie and Lydenburg, Mpumalanga (T). It occurs in damp grassland in seepages and wet hollows (Linder 1981a). The species is threatened by afforestation. New IUCN Red List category: Vulnerable (VU C2a).

7. *Disa amoena* H.P.Linder is a Vulnerable (V) species restricted to the Mt Mauch–Mt Anderson area of Mpumalanga (T). Occurs in well-drained grasslands (Linder 1981a). Three of the known subpopulations are threatened by afforestation. New IUCN Red List category: Vulnerable (VU C2a, D2).

8. *Disa cedarbergensis* H.P.Linder is a Rare (R) species known only from the type collection made in 1987 in the Cederberg Mountains, Western Cape (C) (Linder 1988). Only a single plant was found, but as Linder (1988) points out, this may be due to the fact that it was two years after a fire and species in this group generally flower only in the first year after a fire. It is difficult to evaluate the conservation status of this species in terms of the new IUCN Red List categories, because the size and extent of the population can only be determined after a fire. This area was partially burnt in 1994, so it is likely to be many years before the next fire. The information available at present would result in a classifica-

tion of Critically Endangered (CR B1+3d, C2b, D); however, as this is not a true reflection, Data Deficient (DD) will have to suffice.

9. *Disa clavicornis* H.P.Linder is a Vulnerable (V), possibly even Endangered species known only from two collections made on Mt Anderson in Mpumalanga (T) (Linder 1984). Much of this mountain is now planted under pines (C. Archer pers. comm.); unless subpopulations are found elsewhere, this species could therefore be facing extinction. New IUCN Red List category: Vulnerable (VU C2a, D2).

10. *Disa cochlearis* S.D.Johnson & Liltved ined. is a Vulnerable (V) species known only from the Elandsberg range north of the Swartberg in the Western Cape (C) (Johnson & Liltved in press). Only three plants were found, hence the status given to this species. It could, however, occur elsewhere in this poorly explored area. The new IUCN Red List category, on the basis of current knowledge, should be Critically Endangered (CR C2b, D), but Vulnerable (VU C2a, D1) seems more appropriate.

11. *Disa introrsa* Kurzweil, Liltved & H.P.Linder ined. is a Rare (R) species known only from the Skurweberg, Western Cape (C). Only two subpopulations are known, each comprising approximately 20 individuals (Kurzweil *et al.* in press). The plants only flower in the first year after fire, so may be commoner than present records indicate. As seed-set was very good, there was hopefully some recruitment (H. Kurzweil pers. comm.). On the basis of current knowledge, the new IUCN Red List category should be Critically Endangered (CR C2a, D), but Vulnerable (VU C2a, D1) seems more appropriate.

12. *Disa maculomarronina* McMurtry is an Endangered (E) species known only from two subpopulations comprising approximately 150 plants near Graskop, Mpumalanga (T) (McMurtry 1984). This taxon was initially thought to be a hybrid, *D. versicolor* Rchb.f. × *D. hircicornis* Rchb.f. (Linder 1981a). Despite its possible hybrid origin, this taxon is now considered to be sufficiently distinct for recognition at specific level (McMurtry 1984; Linder & Kurzweil in prep.). It grows on the edges of Black Reef Quartzite in seepages amongst moss (P. Linder pers. comm.). This is a very sensitive habitat which is threatened by afforestation, increasing tourist activity and associated developments in the area (P. Linder pers. comm.). New IUCN Red List category: Endangered (EN C2a, D).

13. *Disa virginalis* H.P.Linder, S.D.Johnson & Liltved ined. is a Rare (R) species known only from a fairly limited area on mountains in the Western Cape (C) (Linder *et al.* in press). At least one subpopulation is threatened by agricultural activities. In terms of the new IUCN Red List categories, it qualifies as Vulnerable (VU C2a).

14. *Eulophia chlorantha* Schltr. is a Rare (R) species which is confined to the mountains of northwestern Swaziland (S) and Mpumalanga (T). Habitat destruction is probably posing an increasing threat to this species. New IUCN Red List category: Lower Risk Near Threatened (LRnt).

15. *Habenaria mossii* (G.Will.) J.C.Manning is an Endangered (E) species apparently endemic to Gauteng (T) where it is known only from a few localities west of Johannesburg and near Pretoria. Two of the known localities have been destroyed by urban expansion and a third by the construction of an airfield. If not under the airfield, this locality may be in privately owned conservation area and similarly with the other two remaining sites. Although in conservation areas, the long term future of these sites is not secure. In addition there have been no recent collections of this species. New IUCN Red List category: Endangered (EN B1+2bd, C2a).

16. *Satyrium pulchrum* S.D.Johnson & Kurzweil ined. is a Rare (R) species from the Knersvlakte near Vanrhynsdorp, Western Cape (C) (Johnson & Kurzweil in press). No threats are known to this highly localized species. In terms of the new IUCN Red List categories a status of Endangered could be given, however, Vulnerable (VU C2b, D1+2) is considered more appropriate as this species was only recently discovered.

17. *Schizochilus cecilii* Rolfe subsp. *culveri* (Schltr.) H.P.Linder, should be added to the list as another Rare (R) species from the mountains of northwestern Swaziland (S) and Mpumalanga (T). Habitat destruction is posing an increasing threat to this species. New IUCN Red List category: Lower Risk Near Threatened (LRnt).

Proteaceae

18. *Serruria lacunosa* Rourke, is an Endangered (E) species which was only discovered for the first time in 1993 on the Matsikamma Mountains in the Western Cape (C) (Rourke 1996). The species was known only from four subpopulations comprising a total of approximately 52 plants (Rourke 1996; N. Helme pers. comm.). Other subpopulations may have been destroyed by farming activities especially ploughing for the propagation of rooibos tea. Since its discovery, 26 plants have died before producing any viable seed and all the remaining plants are very young (N. Helme pers. comm.), so it will be some time before there is any further recruitment. The current owners of the farms where *S. lacunosa* occurs are conservation-minded and will help ensure the protection of this species. Using the original data, the new IUCN Red List category would have been Endangered (EN B1+2c, D), however, the subsequent decline in numbers now qualifies it for it Critically Endangered (CR C2a, D).

SUMMARY

The numerous changes in status and the additions to the Red Data List mean that the statistics on the number of taxa in each threatened category updated in Hilton-Taylor (1996b) need to be revised again. The number of extinctions (Ex) have increased to 62, 277 taxa are Endangered (E), 445 Vulnerable (V), 1 446 Rare (R), 361 Indeterminate (I) and 883 Insufficiently Known (K). The numbers in the last two categories have dropped as a result of re-assessments, some have moved to a higher category while many have been removed as not threatened (nt). Twenty taxa were added to the list while 23 were removed. Although all the threatened categories have shown marked increases, the total number of taxa

listed as globally threatened in the *FSA* region has dropped slightly to 3474. No figures are presented for the new IUCN Red List categories, as it is premature to do so here.

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