AMENDMENTS TO APPENDICES I AND II OF THE CONVENTION

Other Proposals

A. PROPOSAL

Inclusion of Sternbergia spp. in Appendix II.

B. PROPONENT

The United Kingdom of Great Britain and Northern Ireland.

C. SUPPORTING STATEMENT

1. Taxonomy

11. Class: Angiospermae

12. Order: Liliales

13. Family: Amaryllidaceae

14. Genus and Species: Sternbergia Waldst. & Kit.

S. clusiana
S. colchiciflora
S. fischeriana
S. lutea
S. pulchella
S. sicula (lutea ssp. sicula)
S.candida
S. alexandrai
S. species

15. Common Names:

English: Autumn daffodil; Winter daffodil; lilly of the field -S. lutea ; Persian daffodil, zaremocoda, zaremcatta - S. clusiana

French:

Spanish:

16. Synonyms:

Accepted Name	Synonyms
S. lutea	Narcissus autumnalis major Amaryllis lutea Oporanthus luteus Sternbergia aurantiaca
S. sicula	S. lutea var. graeca S. lutea subsp. sicula
S. fischeriana	Oporanthus fischerianus

S. clusiana	Narcissus persicus Amaryllis clusiana S. stipitata S. macrantha S. grandiflora S. latifolia S. spaffordiana
S. colchiciflora	Narcissus antumnalis major Amaryllis colchiciflora A. etnensis A. citrina Oporanthus colchiciflorus S. aetnensis S. dalmatica S. colchiciflora var. dalmatica S. colchiciflora var. aetnensis
S. candida	None
S. pulchella	None
S. alexandrae	None

2. Biological Data

21. Distribution: The genus Sternbergia contains 8 (perhaps 9) species of bulbous plants. The genus occurs in Bulgaria; Balearic Isles; Albania; Aegan Islands; Crete; Crimea; western Russia; southern France (introduced); southern Greece; Hungary; southern Italy; Israel; Lebanon; Islamic Republic of Iran; Iraq; Romania; Sicily; Syria; Turkey; Yugoslavia.

The main concentration of species is to the East of the Bosphorus, in Turkey. Sternbergia is found in short grass meadows, dry scrud, stoney and rocky places including mountains, from sea level to 2000 metres.

Sternbergia

S. candida

Distribution: Turkey. Very rare; known from 1 (the type) or possibly 2 localities.

Status: May be extinct in the type locality through over-collecting. IUCN Regional Rating: V.

The species was discovered about 10 years ago and named in 1979. Immediately, it was collected in large numbers (probably thousands) from the type locality, and was offered in the trade shortly afterwards. One specialist nursery in the United Kingdom currently sells this species but the stock is artificially propagated.

S. clusiana

Distribution: Widespread in S. Turkey, Syria, Lebanon, Iraq, Islamic Republic of Iran.

Status: Threatened? Although occurring over a very wide area this species is under pressure from agriculture (it tends to grow in flat field area) and from collectors.

Until a few years ago there was little or no collecting of this species, which does not grow well in most northern European countries. S. lutea is a popular garden plant but has become difficult to obtain and the situation has arisen that S. clusiana is collected (probably in Turkey) in very large numbers (1000s) and labelled S. lutea for the pre-packed bulb trade. Whether this is an accident or misidentification or by design is not known. This trade should certainly be diminished since very few of the S. clusiana bulbs survive in gardens.

S. colchiciflora

Distribution: Extremely widespread, from Yugoslavia East to Islamic Republic of Iran.

Status: Presently under no threat. IUCN Regional Rating: nt.

A small-flowered species of little interest to horticulturists. There is only a small amount of private specialist collecting.

S. fischeriana

Distribution: Widespread but very local, recorded occasionally from Turkey, Islamic Republic of Iran, Caucases, Iraq and Syria.

Status: Rare. IUCN Regional Rating: ?

Commercial collections have been made in Turkey. The species does not thrive in cultivation in N. Europe so the bulbs seldom survive for long.

S. lutea

Distribution: Widespread in Mediterranean region.

Status: No information, probably not rare or threatened. IUCN Rating: ?

This is the main species to appear in the trade and is the one recommended for cultivation by books (in recent years substituted by S. clusiana under the name of S. lutea - see above). It is by far the 'best' species for cultivation in Europe but has been in short supply in recent years (perhaps this is the reason for the substitution of S. clusiana). It increases fairly quickly vegetatively so there is no reason why artificially propagated stocks should not be built up rather than relying on collected material.

S. pulchella

Distribution: Syria, ?Lebanon.

Status: Apparently rare (P. Boyce, pers. comm.)

Scarely known in cultivation and not collected as far as is known. Certainly should not be collected. Not of very high ornamental value.

S. sicula

Distribution: S. Italy, Greece, SW Turkey, Crete.

Status: Probably not at present under threat.

This is an attractive species and might therefore become subjected to large scale collecting in the future, especially if sources of S. lutea are not found to satisfy the trade. It tends to grow in rocky places, even in crevices, so to some extent is protected by its own habitat. It should not be collected in quantity since the populations are often not large and extensive.

S. alexandrae

Distribution: USSR, Caucasus.

Status: Unknown.

Known only from the original herbarium specimen from 1936.

S. sp. Possibly an underscribed species has been found on the Greek island of Karpathos. No collections should therefore be made on this island.

NOTE - IUCN Conservation Ratings.

Professor T. Ekim and his team are preparing a Red Data Book of Turkish plants and in their opinion all non-endemic Sternbergia species should not be given the IUCN category "V". In addition, they consider S. candida to be in the "E" category (Ekim pers. comm.).

3. Trade Data

31. National Utilization: The main concentration of Sternbergia species is to the East of the Bosphorus, in Turkey. Here also lies the centre of exploitation of the genus. Little is known of its exploitation - and little is thought to occur at present - outside this area. in Turkey it is collected for export and cultivation.

During the recent visit to Turkey by a European fact-finding mission all cultivated stocks seen were wild transplanted (McGough et al., 1989). Although an obvious increase in numbers occurs during cultivation the greater part were wild in origin. A major exporter reported that cultivated stocks require approximately 70% annual replacement from wild collected material. In Turkey Sternbergia species were found to be widely misidentified in cultivation with the result that S. clusiana was grown and exported as S. lutea. This probably unintentional misidentification at source is unfortunate as the former species rarely survives in cultivation at more northerly latitudes, while the latter can thrive. At one nursery the European group

observed approximately 250,000 wild transplanted plants of S. clusiana misidentified as S. lutea in a cultivation area of 0.5 hectares.

32. Legal International Trade: Export figures of Sternbergia from Turkey in the period 1972-1979 averaged 100,000 bulbs per annum, the average for the period 1980-1988 rose to 336,000 per annum

During 1988 alone over 550,000 Sternbergia bulbs were exported. This represents a dramatic increase on previous years' exports (Table 1). Trade figures are available at generic level only, no data are available at species level. All stocks are wild in origin.

Table 1 Numbers of Sternbergia bulbs exported from Turkey between 1972 and 1988

Year	Total Number	Year	Total Number
1972	110,800	1981	252,700
1973	85,500	1982	250,000
1974	64,400	1983	385,000
1975	75,000	1984	295,000
1976	137,000	1985	368,000
1977	158,000	1986	259,250
1978	157,000	1987	453,450
1979	111,000	1988	564,630
1980	200,900		

Sources: van der Plas Haarsma (1987) and Ministry of Agriculture, Forestry and Rural Affairs, Turkey.

The major primary destination of these bulbs is the Netherlands. Table 2 outlines recent import figures to that country.

Table 2 Numbers of Sternbergia bulbs imported into the Netherlands from Turkey 1986-1988

Year	Total Number
1985/86	257,000
1986/87	148,000
1977/88	324,000

No reliable figures are presently available for other primary or secondary destinations. Within the European Community, the United Kingdom and F.R. Germany are known to receive imports, outside the EC, Japan and the United States of America are other final destinations. Appendix II listing should allow detailed trade data to be accumulated.

Sternbergia clusiana, S. lutea, S. fischeriana and s. sicula are known to be exported from Turkey. Sternbergia lutea is the main species to appear in the trade and the most popular species in catalogues for 1987. The misidentification that occurs at source in Turkey is perpetuated in the trade with, in recent years, S. clusiana being sold as S. lutea. These retail consignmments also often contain bulbs of S. fischeriana. Table 3 outlines the species available in the U.K. in the period 1982-89.

33. Illegal Trade: The export from Turkey of Sternbergia as a wild flower bulb is banned. Cultivated material is for the greater part wild transplanted stock. None of this material fulfils the criteria for artificial propagation laid down in CITES Resolution Conf. 2.12. This situation gives rise to the dilemma that strict interpretation and enforcement of the Turkish ban would prohibit export of the greater part of the approximately 330,000 Sternbergia bulbs that annually leave the country.

34. Potential Trade Threats: The main threats to species in the wild is agricultural development and collection for international trade. The problems of misidentification give rise to exploitation of both rare species and taxa not suitable for horticulture. In addition the rarest species are under threat from non specific collection, substitution and specialist collection for international trade. It is not known if populations of the commoner species can withstand the present level of exploitation. Ekim et al. (1984) in a report on the economic geophytes of Turkey recommended that collection of species of this genus from the wild should be banned.

4. Protection Status

41. National:

Turkey: Since 1986, based on the recommendation of Ekim et al. (1984) Sternbergia has been included in a list whose collection from the wild, in Turkey, for export is banned. To date this ban has proved ineffective, due to wild transplanted stocks being treated as cultivated and therefore allowed to be exported.

France: S. colchiciflora has been given complete protection throughout the country from picking, collection, uprooting and sale under the "Protection de la nature" Law, No. 76-629 of 1976.

Israel: The two species of Sternbergia that occur in Israel are fully protected by national law.

Hungary: S. colchiciflora is protected by law.

No specific protection measures for Sternbergia species are known to be in operation in its remaining range states.

42. International: None in existence. Appendix II listing would provide international recognition of the threat posed by trade on the survival of certain species of this genus in the wild. It will also allow international trade to be more accurately assessed and monitored.

5. Information on Similar Species

51. Recognition of Sternbergia bulbs (see attached illustrations): Sternbergia bulbs vary in diameter ranging from 5 mm to 40 mm. A distiguishing feature of Sternbergia in comparison with other bulbs is the presence of a blackish tunic which covers the bulb. This tunic may be absent due to abrasion and in this instance is becomes difficult to distinguish Sternbergia bulbs from small Narcissus bulbs.

52. Recognition in the flowering state: Sternbergia might be confused with Colchicum and Crocus, due to the similarity in their goblet shaped flowers. Crocus can be distinguished from Colchicum and Sternbergia by the presence of three stamens as opposed to six. Additionally Sternbergia can be separated from Colchicum as the former has one style and an inferior ovary seen as an obvious swelling beneath the flower, while Colchicum has three separate styles with a superior ovary.

Sternbergia flowers are mainly yellow, but are white in S. candida; Colchicum are mostly pinkish-purple; Crocus are bluish-lilac; white or yellow.

6. Comments from Countries of Origin

Comments have been sought from all range states.

Comments received from Professor Tuna Ekim of Ankara University have been included in Section 21. Israel would support the listing of the genus if international trade poses a threat to the existence of populations in the wild.

7. Additional Remarks

Turkey is to be commended for the efforts it is making to initiate the conservation of its native geophytes. Such are in the early stages and deserve support and encouragement.

Cultivation and Propagation of Sternbergia: Sternbergia can be grown from seed and also increased vegetatively.

S. candida: vegetative propagation easy as the bulbs increase well in a bulb frame or cool greenhouse (Mathew, 1983). At present being propagated by one nursery in the United Kingdom. However wild collected stocks are still available.

S. colchiciflora: grows well in a bulb frame but is not easily cultivated in open ground (Mathew, 1983). Stocks available are apparently wild collected.

S. fischeriana: stocks are produced commercially in the Netherlands.

S. lutea: stocks available are apparently mostly wild collected. It increases fairly quickly vegetatively.

S. clusiana: available as wild collected stock.

S. sicula: the group of S. sicula included in Table 3 may be propagated.

8. References

Ekim, T. et al., 1984. Taxonomic and Ecological Research on Turkey's Geophytes of Economic Value. Project TBAG/490-A. (In Turkish; English translation available from TRAFFIC Netherlands).

Mathew, B., 1983. A review of the Genus Sternbergia. The Plantsman, Volume 5 Part I Pages 1-16. Published by Royal Horticultural Society of Great Britain.

McGough, H.N., Mathew, B., Read, M., Wertel, H.P. and Wijnands, D.O., 1989. A report on the status and cultivation of Cyclamen species and other Geophytes in Turkey. Report to the Scientific Working Group of the EC CITES Committee.

Plas-Haarsma, M. van der., 1987. Cyclamen in trade. TRAFFIC report No.5, TRAFFIC Netherlands.

Read, M., 1988. Grown in Holland? Fauna and Flora Preservation Society, London. (Confidential Report).

Table 3: Trends in species available 1982-1989 in the United Kingdom

Species	1982	1983	1984	1985	1986	1987	1988	1989	Price Range Sterling
S. angustifolia					*				1.00
S. candida *	*	*	*	*	*	*	*		3.00-4.00
S. clusiana *	*	*	*	*	*	*	*		0.30-1.50
S. clusiana (macrantha)								*	0.75
S. colchiciflora	*	*	*	*	*	*	*		1.75-4.00
S. lutea *	*	*	*	*	*	*			0.10-2.00
S. lutea (augustifolia)	*	*	*	*	*	*	*	*	1.00-1.75
S. fischeriana	*	*	*	*	*	*	*		0.80-2.00
S. macrantha (clusiana)				*	*		*	*	1.00-1.20
S. sicula *	*					*	*		1.50-2.25
S. sicula (angustifolia)						*			1.95
S. sicula Dodena-form							*		2.50
S. sicula (syn. S. lutea var. graeca)							*		2.00

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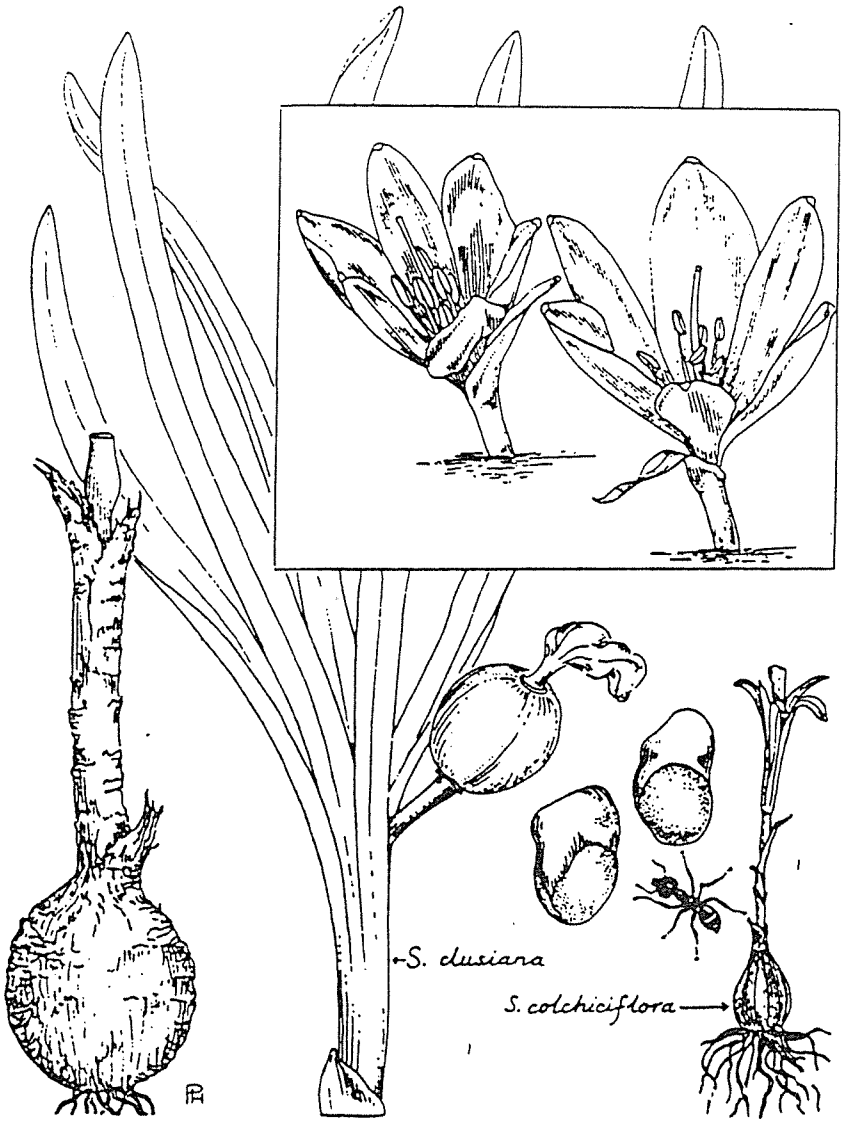
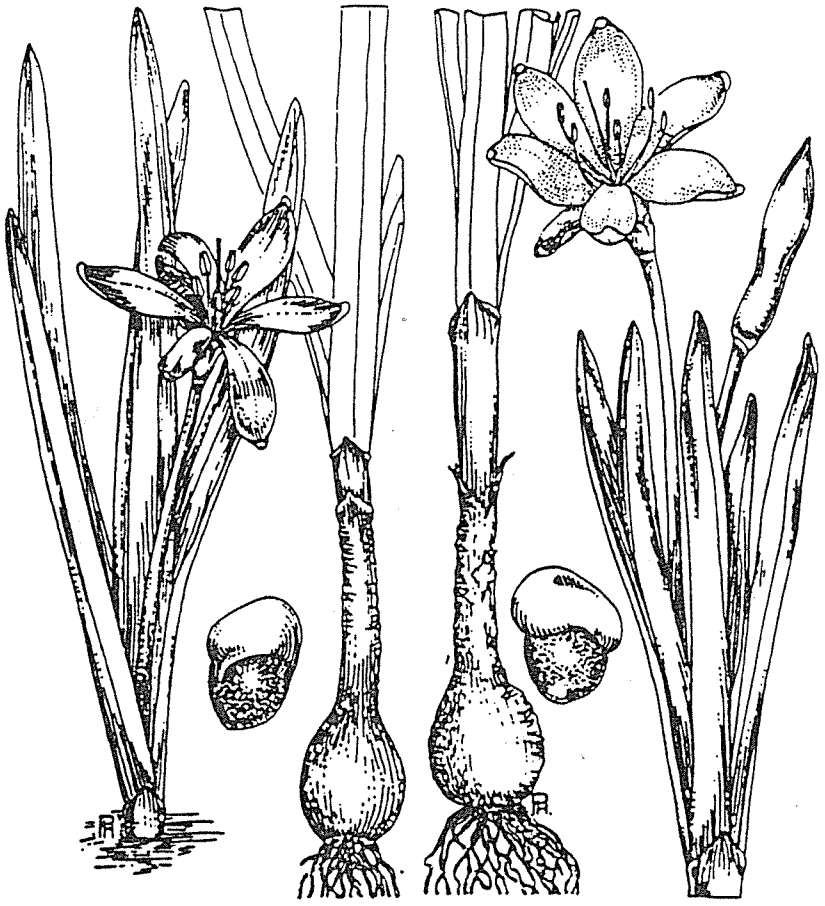
Appendix I



Developmental stages of *Sternbergia clusiana (left* and *inset). Right* is *S. colchiciflora*

Developmental stages of <u>Sternbergia</u> taken from Mathew (1983). All drawings by Pat Halliday.

Developmental stages of *Sternbergia colchiciflora*.



Developmental stages of *Sternbergia fisheriana (left)* and *Sternbergia candida (right)*.

Developmental stages of Sternbergia taken from Mathew (1983). All drawings by Pat Halliday.

Developmental stages of *Sternbergia lutea*.

Developmental stages of *Sternbergia sicula*.

Developmental stages of Sternbergia taken from Mathew (1983). All drawings by Pat Halliday.

Appendix II

Catalogue advertisements

1. The Netherlands:

1988

Sternbergia (Fam. Amaryllidaceae)

982-276 clusiana Boiss. ; wild source material ; South West Turkey, Province Mugla, West of Korcaria ; the flowers are large, deep golden yellow, tinged with green ; ht.of flowerr 7-10 cm; IX - X.

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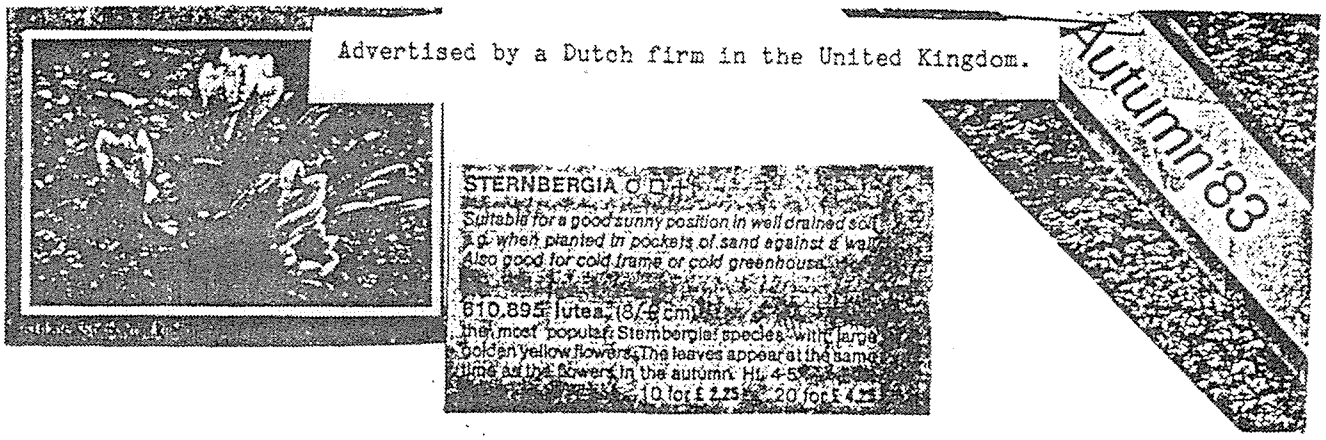
Acc.nr. Sternbergia - continued

982-295 sicula Tineo ex Gussone ; wild source material, C.529; Greece, Central Peloponnese, approx. 1.000 m alt; flowers golden yellow ; foliage narrow, deep green ; an excellent , freeflowering form ; ht. of flowers 5 - 10 cm.; X - XI.

			Dutch Guilders p.100	p.10
	Sternbergia			
982-276	clusiana		! 288,-	30,-
982-295	sicula	C.529	! 288,-	30,-
	Tulipa			
971-054	aitchisonii		! 488,-	50,-
968-016	aitchisonii	var. clusianoides	! 588,-	60,-



2. Federal Republic of Germany:

September 1988

STERNBERGIA candida - Gewitterblume, Amaryllidaceae, Südwesttürkei

Die einzige weißblühende Art der Gattung Sternbergia ist erst vor einigen Jahren entdeckt worden. Sie blüht im ausgehenden Winter. Die Blumen werden etwa 15 cm hoch und öffnen sich zu großen Sternen. *St. candida* gedeiht bei uns in Kalthauskultur in einer leichten Mischung aus sandigem Lehm und Waldhumus. 1 Stück 19.00 DM

3. Great Britain:

SUMMER 1988 STERNBERGIA

The genus is a small one and all respond well to a sharply drained soil in full sun. They will all benefit from a warm, even hot, dry rest in summer and are one of the few bulbs that truly need the classic "summer bake". This aids ripening and particularly flowering. Lime soils are best but they seem to tolerate acid soils well as long as good drainage is provided. The base of a S-facing wall is ideal. All are hardy with us.

candida	Lovely white scented blooms very early in the year.	4.00
clusiana (macrantha)	Glowing gold stemless chalices in Sept-Oct before the leaves.	0.75
colchiciflora	The smallest sp, little yellow stars at ground level in the autumn and narrow,curling leaves in spring. Very hardy sp. Garden soil	2.50
fischeriana	Plain green leaves and large blooms of rich yellow on an upright stem in spring. Bulb frame, plant deep & bake silly over summer.	1.50
lutea PJC 199(1978)	The true species is virtually unknown in the trade despite the frequent offering of the name. We offer a cultivated stock of the wide green-leaved form from the ruins of a farmhouse in S.Greece with large,golden yellow autumn flowers on 10cm stems.	2.00
sicula Dodona Form	This is to my mind the best of the genus. Narrow,prostrate deep green leaves flat on the ground. Upright vivid yellow funnels from Sept onwards. This form from N.Greece flowers well without excessive baking and is an excellent garden plant.	2.50

1986

STERNBERGIA **candida,** The only white sternbergia which was discovered in Turkey only recently. 15cm. White. Jan/February. Rare and Limited Stock. £3.00 each

fischeriana, Spring flowering, bright yellow, in March/April. 15cm. high. £1.00 each

lutea, flowers like a crocus, golden-yellow with a satin sheen. 10cm. Sept./Oct. £0.25 each

macrantha (S.clusiana). Deep yellow flowers Sept./Oct. A new and limited introduction from Southern Turkey. £1.00 each

1987

STERNBERGIA **candida,** the only white sternbergia which was discovered in Turkey only recently. 15cm. White. Jan/February. Rare and Limited Stock. £3.00 each

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macrantha (S.clusiana). Deep yellow flowers Sept./Oct. A new and limited introduction from Southern Turkey. £1.20 each

1986 Specialist's List

STERNBERGIA

* candida White sweet scented flowers on six inch stems in Feb/March. Leaves rather daffodil like. S.W.Turkey. 3.75

* colchiflora Small pale yellow flowers in the autumn, before the leaves. S.W.Turkey. 1.00

lutea ssp. sicula Bright yellow flowers just of the ground. Narrow bright green leaves hugging the ground. From a John Marr collection. 1.50

TECOPHILAEA

cyanocrocus Deep purple-blue with a white eye. 5.00

cyanocrocus var leithclinii Paler with a larger white eye. 5.00

cyanocrocus var violacea Purplish flowers. 5.00