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ENDANGERED AND THREATENED PLANTS OF EDWARDS, EGLIN AND TYNDALL AFB

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Data collected includes occurrence, range, and numbers of plants, habitat, and aids for indentification of threatened and endangered plants. The locations of the plants are plotted on U.S. Geological Survey Quadrangle maps of the selected Air Force Bases. Three species of plants located on Edwards AFB are recommended as threatened in the 1975 Smithsonian Institution Report on Endandered and Threatened Plant Species of the United States (SI Report and a fourth is considered as threatened by Dr. L.R. Heckard, the principal investigator on this segment of the study. Dr. Daniel Ward, who conducted the Florida studies, reported that one species on Tyndall AFB has been proposed for endangered status by the Department of Interior (DOI) , while another two species are recommended for threatened status in the SI Report. On Eglin AFB, two species have proposed endangered status by the DOI; 14 are recommended threatened by the SI Report; 3 are locally threatened in Florida according to the Florida Committee on Rare and Endangered Plants and Animals (FCREPA): 5 are designated rare by FCREPA: and 4 are under review by the DOI for possible threatened status. Reports on the threatened

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FINAL SCIENTIFIC REPORT

FROM

THE SMITHSONIAN INSTITUTION

TO

THE UNITED STATES AIR FORCE

UNDER

AFOSR CONTRACT F44620-75-C-0052

ENDANGERED AND THREATENED PLANTS

OF

EDWARDS, EGLIN AND TYNDALL AFB

JULY, 1978

Introduction

This final scientific report primarily concerns the status of populations of endangered and threatened plant species which occur on Edwards, Eglin and Tyndall Air Force Bases, located as a result of work carried out in 1977 under AFOSR contract F44620-75-C-0052 between the United States Air Force and the Smithsonian Institution.

An interim technical report transmitted to the Air Force in March, 1978 contains detailed descriptive information, illustrations, locality maps and computerized data on the located species.

Status of the Species

Table I enumerates the endangered and threatened plants along with an indication of the current status of the populations in the field.

Edwards AFB. With the exception of Chorizanthe spinosa, the species on this base are threatened because of their scarcity or their limited populations. C. spinosa has no direct threat, is rather plentiful where it occurs throughout the base, and is protected in an area east and southeast of Leuhman Ridge.

Tyndall AFB. Oxypolis greenmanii and Verbesina chapmanii are two of the rarest species on the base, the former numbering only ca. 100 plants. Both species occur in the same general area, ca. 1/3 mi. nnw of Bldg. 9504, 3/4 mi. n. of U.S. 98, S5 T6S, R12W (Bay Co.), in low wiregrass savannah. While V. chapmanii is tolerant of slash pine planting, it cannot survive drainage and it, as well as O. greenmanii, would be seriously threatened by the extension of present dove fields in the area.

Eglin AFB. A particular area of concern is Alice Creek and vicinity (Walton Co.). The unique Ravine Forest of this area was established as a natural area and then later leased out for logging activities. The subsequent erosion and increased competition of the more open-air species has seriously jeopardized the understory species of the forest, including Hexastylis arifolia (found at this location only on base), Rhapidophyllum hystrix, and Stewartia malacodendron. R. hystrix appears to be able to withstand the absence of forest canopy but it, as well as S. malacodendron, are both favored by horticulturists, a situation which further threatens the survival of these species in the wild. The damage to this area has been extensive but the visible results of mismanagement can hopefully serve as a future example to better planning. Extensive logging also threatens Carex baltzellii in the ravines where it occurs.

Other examples of habitat destruction can be seen in the conversion of long leaf pine to slash pine plantations, and drainage and stream channelization projects threatening Baptisia hirsuta and Lilium iridollae, respectively. Commercial development along the Gulf coast has contributed to the decline of Lupinus westianus.

The construction of condominiums and motels accounts for the destruction of a large proportion of Chrysopsis cruiseana, however, Eglin management protects the few individuals on Santa Rosa Island and also protects Magnolia ashei in the four stations where it occurs.

In all cases, even where protected, the species may fall prey to collectors who favor these rare species as horticultural novelties. Sarracenia leucophylla has not been observed but may be present in spite of collectors, agricultural projects and logging.

Summary and Recommendations

The field data collected during the term of study indicate that in certain areas, habitats of species which are vulnerable to the destructive results of human activities are present, and should be more closely monitored, with overt steps being taken to conserve the populations.

According to the U.S. Fish and Wildlife Service (Federal Register 41(117): 24523-24572, 16 June 1976), several of the plants have the technical status of proposed endangered species:

1. Chorizanthe spinosa (Edwards AFB)
2. Oxypolis greenmanii (Tyndall AFB)
3. Lilium iridollae (Eglin AFB)
4. Warea sessilifolia (Eglin AFB)

It may be noted from the "Status" section that the Oxypolis and Lilium appear to currently be threatened on the bases. It would seem appropriate that the four species should be special targets of conservation, and efforts could proceed from them to the other endangered and threatened species under review by the federal or state governments, as indicated in Table I of the March, 1978 interim technical report.

The whole of the data assembled during the current study should be useful to the Air Force in assisting the determination of critical habitat via consultation with the Department of the Interior. It is recommended that the

Air Force consider exploring the possibilities of similar studies on other Air Force Bases in order to accumulate expertly gathered information.

Table I. Status of Endangered and Threatened Plant Species on Edwards, Tyndall and Eglin AFB.

SPECIES	BASE	STATUS
Calochortus striatus (Liliaceae)	Edwards	small populations; no direct threat
Chorizanthe spinosa (Polygonaceae)	Edwards	no direct threat; base has encouraged protection
Cymopterus deserticola (Apiaceae)	Edwards	rare; no direct threat
Muilla coronata (Liliaceae)	Edwards	very scarce; no direct threat
Oxypolis greenmanii (Apiaceae)	Tyndall	one of the rarest on base; ca. 100 plants; very limited range; expansion of existing dove fields could destroy 1 station.
Sarracenia psittacina (Sarraceniaceae)	Tyndall	frequent; marginally threatened by drainage & collectors.
Verbesina chapmanii (Asteraceae)	Tyndall	one of the rarest on base; present management adequate but expansion of dove fields or drainage practices could be destructive.
Agaloma discoidalis (Euphorbiaceae)	Eglin	not very threatened; rather frequent; found with longleaf pine, a species rapidly disappearing due to commercial forestry.
Baptisia hirsuta (Fabaceae)	Eglin	still found in some number on base; may be threatened by habit destruction; longleaf Pine associations are being destroyed by conversion to slash pine plantations.
Calamintha dentata (Lamiaceae)	Eglin	limited range; no direct threat.
Carex baltzellii (Cyperaceae)	Eglin	Very limited habitat; threatened by clearing or extensive logging.
Chrysopsis cruiseana (Asterace)	Eglin	rare; fenced & protected; if it continues to decline it will be endangered.
Drosera intermedia (Droseraceae)	Eglin	rare; minor destruction due to drainage & lake pollution.

SPECIES	BASE	STATUS
Epigaea repens (Ericaceae)	Eglin	only one plant found on base (Pt. Lookout Station); should be protected.
Hexastylis arifolia (Aristolochiaceae)	Eglin	threatened by habitat destruction due to sale of surrounding highland timber.
Kalmia latifolia (Ericaceae)	Eglin	rare; no direct threat.
Lilium iridollae (Liliaceae)	Eglin	rare; threatened by drainage & stream channelization.
Litsea aestivalis (Lauraceae)	Eglin	rare; no direct threat.
Lupinus westianus (Fabaceae)	Eglin	rare; threatened by commercial development but not on base.
Magnolia ashei (Magnoliaceae)	Eglin	no direct threat; 350 individuals on base are protected.
Nuphar luteum ssp. ulvaceum (Nymphaeaceae)	Eglin	not threatened on base.
Peltandra sagittifolia (Araceae)	Eglin	rare; no direct threat.
Pieris phillyreifolia (Ericaceae)	Eglin	rare; no direct threat.
Pinguicula planifolia (Lentibulariaceae)	Eglin	should occur on base but not observed because of drought.
Polygonella macrophylla (Polygonaceae)	Eglin	rare; no direct threat.
Rhapidophyllum hystrix (Arecaceae)	Eglin	threatened by logging.
Rhexia salicifolia (Melastomataceae)	Eglin	rare; not observed on base although probably occurs in the dune swale habitats.
Rhododendron austrinum (Ericaceae)	Eglin	threatened; removed for horticultural purposes.
Sarracenia leucophylla (Sarraceniaceae)	Eglin	not observed on base; threatened by horticulturalists, agri. & timber management; maybe present.
Sarracenia rubra (Sarraceniaceae)	Eglin	rare; no direct threat.
Stewartia malacodendron (Theaceae)	Eglin	threatened by logging.
Tephrosia mohrii (Fabaceae)	Eglin	widespread on base; does not seem to need management.
Warea sessilifolia (Brassicaceae)	Eglin	not threatened.
Xyris longisepala (Xyridaceae)	Eglin	very rare; no direct threat.