



DEPARTMENT OF THE ARMY
HEADQUARTERS, NATIONAL TRAINING CENTER & FORT IRWIN
FORT IRWIN, CA 92310-5000

REPLY TO

ATTENTION OF

September 29, 2003

Director, Strategic Programs

Ms. Diane Noda
Administrative Division, Field Supervisor
U.S. Department of the Interior
Fish and Wildlife Service
Ventura Field Office
2493 Portola Road, Suite B
Ventura, CA 93003

Dear Ms. Noda:

On July 2, 2003, Fort Irwin and the National Training Center, submitted to the Service a Biological Assessment For the Proposed Addition of Maneuver Training Land at Fort Irwin, CA. (BA) (Charis(a), June 2003). As stated in the cover letter transmitted with the BA, Fort Irwin was completing additional surveys for Lane Mountain milk-vetch in Spring 2003 and the results of that survey would be forwarded to the Service in an addendum to the BA upon completion of analysis. This letter is intended to serve as the addendum referenced in the original cover letter. Additionally, Fort Irwin conducted a limited pollination study of Lane Mountain milk-vetch, as little was known regarding pollinators for the plant. The pollination study, Lane Mountain Milk-vetch Pollination Report (Charis(b), 2003), is attached hereto and thus fully incorporated into the appendices of the BA by this reference. The results of the 2003 Lane Mountain milk-vetch survey and summary of information collected in the pollination study are presented below.

1. 2003 Lane Mountain Milk-vetch Survey

In Spring 2003, the Army conducted a survey with the specific purpose of locating plants and habitat outside of the mapped population boundaries as presented in the BA. Two types of transects were performed, the straight line transect method as previously described in the *2001 Lane Mountain milk-vetch Survey Report* (Charis, 2002) and "scouting transects" wherein two botanists walked areas that appeared to have characteristics that would support milk-vetch. While 13 plants were recorded in both straight line and scouting transects, all locations were adjacent to the boundaries of the previously delineated geographic populations. No new geographically separate populations of the plant were located

The survey results support two conclusions: first, it is true and/or likely that additional habitat and plants occur outside the prior delineated population polygons in close association with the boundary edges, as plants were located outside the Paradise and Coolgardie Mesa population boundaries. This fact supports the conclusion that the results of the 2001 survey represent a

minimum population snapshot for the current drought cycle and that the range and distribution of the species as currently mapped in the BA is likely highly accurate; second, it is unlikely that any new large or geographically separated occurrences are present, as scouting transects in 2001 and 2003 covered a large percentage of potential habitat and no plants were located.

The results do not significantly alter the analysis of the effects of the expansion on Lane Mountain milk-vetch contained within the BA. The survey data will, however, be made available to the Service upon request for use in formulation of the recovery plan and critical habitat designation.

2. Pollination Study

Little was known regarding Lane Mountain milk-vetch pollination prior to this survey completed Spring 2003. Although this season's total precipitation was not too far from average, this was not a good year for Lane Mountain milk-vetch. The erratic precipitation and relatively warm winter, coupled with last year's drought, resulted in fewer, less robust milk-vetch plants with an earlier and shorter flowering season. Consequently, it meant that finding suitable research plants was difficult and sample sizes were small.

Anthidium bees were the major pollinator of Lane Mountain milk-vetch. No other insect visited as often nor was so focused on milk-vetch flowers. The second most common visitor seen in this study was *Eupeodes*, a common syrphid fly, who also visited just about every other flower in the vicinity. Pollen is a major component of the diet of these flies (Stelleman 1978, in Charis(b), 2003), and the fact that they visit so many different flowers limits their usefulness as a pollinator (Faegri and van der Pijl 1979, in Charis(b), 2003). Lane Mountain milk-vetch appears to be used as an occasional resource for Syrphid flies, Sphinx moths (both of which visit a number of species) and *Anthophora* bees (who mostly utilized *Thamnosma* and *Salazaria* in the study site). There may be more than one species of *Anthophora* that occasionally visits milk-vetch. In flight, the bees look very similar, and precise identification often requires capturing the animal.

Anthidium dammersi is not dependent on Lane Mountain milk-vetch. The bees have been reported visiting *Dalea* (now *Psorothamnus*, Hickman 1993, in Charis(b), 2003) *fremontii*, *D. fremontii* var. *sandersii*, *Phacelia distans*, and *Astragalus lentiginosus* var. *fremontii*. (Grigarick and Stange 1968, Krombein et al 1979, in Charis(b), 2003). In this study, both observations and pollen load analysis are in agreement that *Phacelia distans* is an important resource for *Anthidium* bees. The scopal loads of female *Anthidium* were essentially pure milk-vetch or *Phacelia* pollen. Both species are collected as food for larval *Anthidium*, and the pollen of the two species is similar in size, shape and ornamentation. It appears, therefore, that the bees use *Phacelia* and the legumes for nest provisions (pollen), as well as for a source of nectar. Judging from the sparse pollen load data, it appears that adult *Anthidium* bees eat milk-vetch nectar, as evidenced by the pollen found on the face and mouthparts.

Phacelia, *Psorothamnus*, and *Astragalus* species are widespread (Munz 1974, in Charis(b), 2003), so it is not surprising that *Anthidium* is more widely distributed than Lane Mountain milk-vetch. The reported range for the bee includes both the Mojave and Colorado deserts in

California and Nevada, and probably Arizona as well (Grigarick and Stange 1968, Krombein et al 1979, in Charis(b), 2003). Although three other *Anthidium* species were noted, *A. dammersi* was not collected during recent arthropod surveys on Edwards Air Force Base (Pratt 2000, in Charis(b), 2003).

In the current study, four different pollinators were observed visiting Lane Mountain milk-vetch, but only one appeared to be significant. Literature reports of *Astragalus* flower visitors do not often specify the important pollinator species. Insects reported visiting *Astragalus* include bumblebees (*Bombus*), honeybees (*Apis mellifera*), other bees (*Andrena*, *Anthophora*, *Emphoropsis*, *Megachile*, *Osmia*, and *Psithyris*), bee-flies (*Bombyliidae*), and butterflies (*Lycaedes*, *Plebejus*) (Karron 1987, Sugden 1985, USFWS 1998, Yamamoto 1985 in USFWS 1998, in Charis(b), 2003).

Self pollination is reported to be common in *Astragalus* (Barnaby 1964, in Charis(b), 2003), but this conclusion may be based more on the observation that anthers shed pollen at the same time that the stigmas are receptive. Reports in the literature indicate that *Astragalus applegatei* is capable of "significant seed production" through self-fertilization. (USFWS 1998, in Charis(b), 2003). Lane Mountain milk-vetch does not appear to self pollinate routinely, and it is unknown if the species is self-compatible.

The occasional visitors to milk-vetch flowers were commonly observed visiting other flowers. During the course of this study, syrphid flies were observed to land on milk-vetch flowers 25 times and were observed visiting the flowers of eight other species. Five milk-vetch visits were noted for the large anthophorid bee, which was more commonly working *Thamnosma montana*, *Salazaria mexicana*, *Delphinium parishii* and *Phacelia distans*. The white-lined sphinx moth, which was observed visiting two milk-vetch flowers, was mostly working *Salazaria* and was seen visiting four other species.

Approximately 16 other species of plants were flowering at the same time as milk-vetch. Usually there was a fair amount of insect activity, as long as it was not too cold or windy. Three species were notable for the wide array of insects visiting their flowers: *Phacelia* (with 13), *Xylorhiza* (with 13) and *Salazaria* (with 11).

While limited in time and scope, the survey provides evidence that no specialized pollinators visit Lane Mountain milk-vetch.

Conclusions

As agreed to by the U.S. Fish and Wildlife (USFWS) during a September 15, 2003 meeting among Bureau of Land Management, USFWS, and NTC representatives, the addition of the BA addendum and the Lane Mountain Milk-vetch Pollination Report will not change the timeline for reviewing the Biological Assessment and issuing a Biological Opinion, with the review date starting on July 3, 2003 and the Opinion to be rendered within 135 days of that date.

Again, we look forward to working cooperatively with you and your staff during the consultation process. My point of contact for this action is Mr. William M. Quillman, Fort Irwin DPW, at telephone (760) 380-3740, or Ray Marler Director, Strategic Programs at telephone (760) 380-3035.

Sincerely,



Edward L. Flinn
Colonel, U.S. Army
Deputy Command and
Chief of Staff

Enclosure