Work Task F6: MacNeill's Sootywing Monitoring of Conservation Areas

FY12 Estimates	FY12 Actual Obligations	Cumulative Expenditures Through FY12	FY13 Approved Estimate	FY14 Proposed Estimate	FY15 Proposed Estimate	FY16 Proposed Estimate
$70,000	$79,854.92	$226,897.61	$80,000	$80,000	$80,000	$80,000

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Start Date: FY09

Expected Duration: FY55

Long-term Goal: Post-development monitoring for MacNeill's sootywing.

Conservation Measures: MNSW2

Location: Habitat-creation sites: Palo Verde Ecological Restoration Site, Cibola Valley Wildlife Conservation Area, Laguna Division Conservation Area, Hart Mine Marsh

Purpose: The purpose of this work task is to monitor vegetation, plant-quality, and populations of MacNeill's sootywing in habitat created for the species.

Connections with Other Work Tasks (past and future): Habitat requirements were determined in Work Task C7, Survey and Habitat Characterization for MacNeill's sootywing.

Project Description: Results from Work Task C7 determined that sootywings require host plants quailbush that are larger than 1.6 m in height, greater than 64% in plant water content, and greater than 3.2% in leaf nitrogen content. Sootywings also require plants other than quailbush for nectar (e.g., *Heliotropium curassavicum* [Boraginaceae] and *Sesuvium verrucosum* [Aizoaceae]). These attributes will need to be monitored in created habitat. Monitoring host-plant water content is especially critical, as it will be driven by the timing and amounts of irrigation. Leaf nitrogen-content does not need to be monitored, because quailbush fixes atmospheric nitrogen, and leaf nitrogen-content increases with leaf water-content. Utilization of new habitat by sootywings also will need to be surveyed. Additional requirements of the species will need to be considered if created habitat fails to become colonized.

Previous Activities: Habitat created for MacNeill's sootywing at CVCA and PVER was surveyed for adult sootywings during April-September 2009-2010. In 2009, four plots were surveyed at CVCA, and one plot was surveyed at PVER. Five plots were surveyed at CVCA, and three plots were surveyed at PVER, during 2010. Sootywings were most abundant during both years at CVCA Phase 4, with > 200 adults counted during

September along a dirt road bisecting the plot. Sootywings also were abundant at a detached CVCA Phase 4 plot. Sootywings were rare (< 5 adults per date) or absent at the other CVCA plots and at all of the PVER plots. The large population of sootywings at CVCA Phase 4-west during 2009-2010 disappeared during 2011. The most-successful sootywing plot at PVER is Phase 4. Sootywing populations were low (< 5 adults per date) but increasing late in the season. Sootywing populations at the other CVCA and PVER plots were low or absent.

FY12 Activities: Monitoring method changed during FY12. One random-transect was walked in each check monthly from April through August. Plots monitored were CVCA Phases 2 and 3, CVCA Phase 4 West (2 checks) and East (3 checks), CVCA Phase 5 (2 checks), PVER Phase 4, and PVER Phase 5 (2 checks). Sootywings were generally absent throughout the season. A total of 7 sootywings were counted at CVCA, and a total of 13 sootywings were counted at PVER (all in Phase 4, mostly in April).

FY13 Activities: Quailbush plots will be sampled for sootywings using the same random-transect method as in FY12. Nine restoration plots, totaling 280 acres, will be monitored for sootywings during April to September:

Activities during this fiscal year also will begin monitoring of sootywing abundances and habitat characteristics at conservation areas. Habitat characteristics include: 1) host-plant water content, 2) availabilities of nectar sources, and 3) plot size and isolation in relation to sootywing dispersal. Other factors such as predation or parasitization may need to be examined if created habitat fails to become sufficiently colonized.

Proposed FY14 Activities: The plots mentioned above will continue to be monitored. Additional plots will be monitored as they are planted. This may include Hart Mine Marsh and possibly Laguna Division Conservation Area. Activities during this fiscal year also will continue examining causes of different sootywing abundances among conservation areas.

Pertinent Reports: 2012 Annual Reports for MSCP Work Task F6: Monitoring MacNeill's Sootywing in Habitat Creation Sites.