

## Summary Description of the Swainson's Hawk Conservation Strategy

*Note to Reviewers:* This handout provides a description of the proposed habitat conservation targets for Swainson's hawk and the basis for the targets and other supporting conservation measures in providing for the conservation of the species.

**Target #1: Preserve (i.e., protect and enhance) between 19,520 and 39,035 acres, depending on the foraging habitat function of preserved habitat, of Swainson's hawk foraging habitat.** Preservation will be achieved through protection, enhancement, and management of high quality grasslands and intact vernal pool and alkali seasonal wetland complexes around the periphery of the Delta (8,000 acres) and through the establishment of agricultural preserves that are farmed in crops that support moderate to high value Swainson's hawk foraging habitat (15,170-30,330 acres).<sup>1</sup> Foraging habitats will be preserved near occupied nesting habitats in Conservation Zones 1-8.

**Target #2: Restore and manage at least 4,000 acres of nesting habitat.** Nesting habitat would be restored or created through establishment of 5,000 acres of riparian habitat, at least 4,000 acres of which is expected to support suitable Swainson's hawk nest trees over the term of the BDCP. Swainson's hawk nesting habitat will be restored near foraging habitats.

### **Basis of Providing for Conservation:**

BDCP actions are estimated to permanently affect 33,130 acres of Swainson's hawk foraging habitat, which consists of grasslands, managed wetlands, and agricultural lands. Of the total affected area, approximately 5,730 acres is attributed to the project footprint and 27,300 acres is attributed to restoration actions that would convert existing agricultural foraging habitat to an unsuitable cover type for Swainson's hawk foraging. BDCP actions are also expected to remove approximately 435 acres of riparian nesting habitat.

Nesting Swainson's hawks are widely distributed throughout the Planning Area and surrounding lands. Breeding densities are high in some areas, particularly the north, east, and south Delta, and less so in the Central Delta and south Yolo Bypass. The majority of the land within the Planning Area is considered suitable Swainson's hawk foraging habitat, although actual value varies depending on annual and seasonal crop patterns and practices. Of the 314 nesting records since 2000, at least 220 of these are considered independent and are potentially active in any given year<sup>2</sup>. Eight of these occur within the project footprint and about 100 occur within 0.5 miles of the eastern alignment or tidal marsh restoration footprints and thus could be directly affected by the removal of agricultural and grassland foraging habitat. The Swainson's hawk forages widely during the breeding season, but forages only in those habitats that are suitable annually or seasonally. For example, areas planted to corn, one of the most abundant crop types in the Central Delta, are used minimally due to the lack of prey accessibility. Thus, only some portion of the total affected acres are used by foraging Swainson's hawks in any given year.

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<sup>1</sup> BDCP created managed wetland acreage may contribute to achieving these targets if they support greater foraging habitat value than the existing foraging habitat values supported by the habitats on which managed wetland is created.

<sup>2</sup> The total of 314 nesting records may include some nesting territories counted more than once due to different surveys and survey years and the use of alternative nesting locations by individual nesting pairs. To account for this, each reported nesting site was examined for independence. The minimum of 220 nesting territories potentially active in any given year was derived from 97 sites reported during 2009 DWR surveys of the Central Delta, 56 sites reported from 2007 and 2008 surveys conducted by Estep in Yolo and Sacramento Counties, and an additional 67 sites reported in CNDDDB since 2000, most of which were from surveys conducted for the Solano County HCP or from DWR surveys in the South Delta.

The value of foraging cover types is highly variable, particularly in agricultural landscapes. To address this variability, the relative value of each cover type was estimated to more accurately reflect use of the landscape, the distribution of the species, and to develop appropriate conservation strategies. Foraging cover types were classified into five ranking categories based on documented use and estimated relative value, from 0.1 to 1.0. Acres of each type were converted to habitat units by multiplying the actual acres by the value ranking. While this evaluation used cropping patterns in only one year, it is assumed that this relative pattern is generally consistent with recent-past and predicted near-future distribution. The evaluation indicated that the distribution of higher value foraging habitat (e.g., rankings of 1, 0.75, and 0.5) is closely associated with the distribution of nesting territories and that nesting density is much lower in areas supporting lower value habitats (e.g., 0.25 and 0.1). Lower value habitat occurs primarily in the Central Delta where corn and other low or unsuitable crop types are traditionally grown. Unsuitable or low value cover types also occur throughout the suitable foraging habitat landscape; however, due to crop rotations, the landscape at the local level changes seasonally and annually, but as noted above is assumed to be relatively stable at a broader geographic level.

Applying the relative ranking values to each cover type, a total of 19,520 foraging habitat units would be permanently impacted by project actions. Conservation of Swainson's hawk foraging habitat will be achieved through preservation of 19,520-39,035 acres of high to moderate foraging habitat (i.e., rankings of 1.0-0.5) that are currently unprotected. The extent of preserved agricultural habitat will depend on the foraging habitat values associated with the preserved lands (e.g., preserving a greater proportion of high value foraging habitat requires preservation of less habitat than preserving habitats with lower foraging habitat value). At least 8,000 acres will be provided through preservation grassland communities (i.e., grassland, vernal pool complex, and alkali seasonal wetland complex). The remainder will be provided through preservation and management of 15,170-30,330 acres of agricultural lands that support high to moderate value foraging habitat or equivalent natural habitats. An estimated 22 percent of Swainson's hawk foraging habitat within the Planning Area is currently preserved on state and federal wildlife refuges, other state-owned lands, and mitigation banks and is expected to remain suitable Swainson's hawk foraging habitat. Following implementation of BDCP actions, between 26 and 29 percent of the total available foraging habitat in the Planning Area will be protected; the increase of which will be provided only through preservation moderate-high value foraging habitat. Foraging habitats will be preserved in proximity to nesting habitats and connected with foraging habitats within and adjacent to the Planning Area.

Conservation of Swainson's hawk will be achieved through maintaining a suitable nesting and foraging landscape across the Planning Area and adjacent lands through strategic acquisition and management of grassland, seasonal wetland, and agricultural preserves and restoring at least 4,000 acres of riparian nesting habitat near foraging habitat, much of which will be located near preserved foraging habitat in Conservation Zones 1, 4, and 7. Preserved grasslands and agricultural lands will be managed to provide high value Swainson's hawk foraging habitat. Conservation will occur in cooperation and in conjunction with neighboring and overlapping HCP/NCCPs to ensure that conservation actions occur where they most benefit the regional Swainson's hawk population and where they are compatible with conservation of other agricultural and riparian-associated species. It is also expected that ongoing agricultural land uses within and adjacent to the Planning Area will also continue to support foraging habitat for Swainson's hawks nesting and wintering in the Planning Area.