**Fleskes LCC Projects: updated timelines for deliverables**

**Title: Tracking landscape change in the Central Valley: Developing critical**

**capability, strategies, and data to guide conservation and management of**

**birds and their habitats.**

***1 Oct 2010*** – Report summarizing the types and timing of key habitats (including postharvest

treatment types for agricultural habitats) for which tracking data are needed for wintering

waterfowl, breeding waterfowl, shorebirds, other waterbirds, and riparian shorebirds.

Accomplishments- This timeline was largely met with the Project Update/Data Summary that was provided by USGS (Joe Fleskes) on 1 Oct 2010. Final summary will be included in 1 April 2011 report (see below).

***1 Oct 2010*** – Set of current maps showing the extent of Rice and Urban classes for 2009.

Accomplishments- This timeline was largely met by the Interim Report that was provided by Ducks Unlimited (Dan Fehringer) on 1 Oct 2010.

***1 Apr 2011***– Report describing available and new data sources necessary to track key

habitats for each JV bird group.

Anticipate delivery on planned date (will also include final listing of key habitats).

***1 Oct 2011*** –Report comparing costs and logistical feasibility of options that could be

used to track change in key habitats for each JV bird group.

Anticipate delivery on planned date.

***1 Oct 2011*** –Complete digital map of habitat types for wintering waterfowl for the Central Valley.

Anticipate delivery on planned date.

***1 Oct 2011*** –Report that includes updated spatial representation and tabular database of wintering waterfowl habitat for the Central Valley.

Anticipate delivery on planned date.

\*\*\*The next phase of this work which would be to accomplish landscape tracking of all key bird habitats (based on the methods and costs detailed during this study) will require additional funding\*\*\***Title: Understanding impacts of climate change on ecology and habitats of waterfowl, shorebirds, and other waterbirds: Guidance for the California LCC and other wetland habitat conservation programs in the Pacific Flyway.**

***1 Oct 2010*** – An interactive project website for resource managers and others describing the project goals, partners, preliminary results, and other related information.

Accomplishments- This timeline was met when the project webpage was established on 9/28/10 at <http://www.werc.usgs.gov> . The webpage will be updated periodically as the project progresses and results and other new information become available.

***1 Oct 2010 (Revised to 15 Feb 2011)*** – A set of realistic scenarios of changes in habitat quantity, quality (including food availability), distribution, and timing for at least one of the major hydrological basins in the Central Valley based upon available data on regional water supply scenarios, supplemented as needed with downscaled climate model predictions of temperature and precipitation patterns, potential evapotranspiration and climatic water deficits.

Accomplishments- Water runoff estimates from drainages supplying Butte Basin have been produced based on downscaled climate model predictions of temperature and precipitation patterns, potential evapotranspiration, and climatic water deficits using two different climate models for two likely CO2 scenarios. These four water supply projections are currently being analyzed, assuming average conditions and drought conditions, in a complex water management model (WEAP) used to evaluate available water supplies for urban and agricultural uses, stream flow requirements, and wetland resources. The model accounts for physical and operational supply and delivery system limitations and incorporates effects of predicted urban growth on supplies for the various demands. Water supplies for wetlands and agricultural lands of value to waterbirds are being estimated assuming the current and other water allocation scenarios. We expect to complete the WEAP modeling phase for Butte Basin in December. We will then model changes in waterbird food supplies using the TRUEMET model under the different water management scenarios and expect to summarize and report results for Butte Basin by 15 Feb 2011.

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***1 Oct 2011 (See below)*** – A set of realistic scenarios of changes in habitat quantity, quality (including food availability), distribution, and timing for all major hydrological basins in the Central Valley based upon available data on regional water supply scenarios, supplemented as needed with downscaled climate model predictions of temperature, precipitation, potential evapotranspiration, and climate water deficits. Report summarizing changes in key waterfowl ecology metrics (i.e., abundance, distribution, body condition, and survival) for at least one of the major hydrological basins in the Central Valley based upon results of bioenergetics modeling (i.e., TRUEMET) and ecological relationships of waterfowl and their habitats under different climatic change and management scenarios. Report summarizing changes in key shorebird ecology metrics (i.e., abundance, distribution, body condition, and survival) for at least one of the major hydrological basins in the Central Valley based upon results of bioenergetics modeling (i.e., TRUEMET) and ecological relationships of shorebirds and their habitats under different climatic change and management scenarios.

Based on what we are learning during the Butte Basin modeling, we expect the initial funding that was provided us late in FY10 that we carried over should be adequate to complete modeling of water supplies and impacts on key waterbird habitats for two additional Central Valley basins, with the 2nd basin completed by about 30 May 2011 and the third completed by about 15 Aug 2011. Additional funding (see FY2011 budget request in proposal) will be required to complete modeling of water supplies for the other basins and impacts on bird ecology metrics.

***1 Oct 2012*** – Report summarizing changes in key waterfowl ecology metrics (i.e., abundance, distribution, body condition, and survival) for all major hydrological basins in the Central Valley based upon results of bioenergetics modeling (i.e., TRUEMET) and ecological relationships of waterfowl and their habitats under different climatic change and management scenarios. Report summarizing changes in key shorebird ecology metrics (i.e., abundance, distribution, body condition, and survival) for all major hydrological basins in the Central Valley based upon results of bioenergetics modeling (i.e., TRUEMET) and ecological relationships of shorebirds and their habitats under different climatic change and management scenarios. Report summarizing changes in other waterbird key ecology metrics (i.e., abundance, distribution, body condition, and survival) for at least one major hydrological basin in the Central Valley based upon results of bioenergetics modeling (i.e., TRUEMET) and ecological relationships of waterbirds and their habitats under different climatic change and management scenarios. Report summarizing the timing and locations of critical resources for waterfowl and shorebirds that are most at risk due to climate change in the Central Valley. Report summarizing and consultations on possible adaptive strategies and critical information gaps to account for climate change in habitat conservation planning for shorebirds and waterfowl in the Central Valley.

Dependent upon timing and amount of FY12 funding.

***1 Oct 2013*** – Report summarizing changes in other waterbird key ecology metrics (i.e., abundance, distribution, body condition, and survival) for all major hydrological basins in the Central Valley based upon results of bioenergetics modeling (i.e., TRUEMET) and ecological relationships of waterbirds and their habitats under different climatic change and management scenarios. Report summarizing the timing and locations of critical resources for all waterbirds that are most at risk due to climate change in the Central Valley. Report summarizing and consultations on possible adaptive strategies and critical information gaps to account for climate change in habitat conservation planning for all waterbirds in the Central Valley.

Dependent upon timing and amount of FY13 funding.