Floodplains Reimagined Bird Ad Hoc Group
October 25, 2022, 11:30 am – 1:30 pm
Virtual Meeting, Zoom platform

The meeting objectives were:
- Recap from the previous Bird Model AHG (June 2022)
- Confirm habitat suitability criteria
- Discuss and decide key bioenergetics assumptions

Action Items
- Virginia Getz to share USFWS map with Kristy Dybala.
- Craig Isola to share crane data with Kristy Dybala.
- Kristy Dybala to add key species descriptors within the Habitat Suitability Criteria.
- Kristy Dybala to further research invertebrate assumptions for the bioenergetics model.

Key Confirmations
Process: The following agreements are not final in any way and will be transmitted to the Advisory Committee and ultimately the Steering Committee for final approval.
1. Are there any final objections to these priority species/taxa? – **Confirmed priority species** with some clarification around sandhill crane separated from other waterbirds due to differing habitat types
2. Are there any final adjustments needed for the habitat suitability criteria (HSC)? – **Confirmed HSC** with discussion around diving versus dabbling ducks but group decided that bulk of population is dabbling; Point Blue will clarify descriptions of birds in notes
3. Request for data: Are there any other data on known roost sites? – Craig and Virginia will provide some additional datasets; discussion around water depth for cranes; Point Blue will add some nuance to the HSC, again clarifying descriptions in the notes
4. Prioritize bioenergetics modeling for Phase 1 – **Confirmed** that bioenergetics should be prioritized for Phase 1 with clarification that the model will incorporate assumptions for invertebrate, non-grain, and non-seed availability.
5. Do the estimates apply to the program area? – **Confirmed** that the estimates apply to the project area; Point Blue will look into the invertebrate assumptions a bit more
6. Which bioenergetics modeling approach should be applied? – **Confirmed** to adopt third approach (energy supply and carrying capacity) since the goal is to compare scenarios; this approach does not closely align with the CVJV objectives but will be created for this Program's purpose

Welcome and Introductions
Kayla Kelly-Slatten (Kelly-Slatten), Kearns & West, welcomed all attendees. Bird Ad Hoc (BAH) members in attendance are listed in the table below.

Name of Advisory Committee Member	Affiliation
Craig Isola	U.S. Fish & Wildlife Service (USFWS)
Greg Golet	The Nature Conservancy

Mark Petrie	Ducks Unlimited
Maya Kepner	American West Conservation
Roger Swanson	Wild Goose Club, Inc.
Todd Manley	Northern California Water Association
Torey Byington	River Partners
Virginia Getz	Ducks Unlimited

The following Program and Technical Team members attended:

Program or Technical Team Member	Affiliation
Barry O'Regan	KSN
Chris Campbell	cbec
Dennis Jongsomjit	Point Blue
Eric Holmes	Kearns & West
Julie Leimbach	Kearns & West
Kayla Kelly-Slatten	Kearns & West
Kelly Iknayan	San Francisco Estuary Institute
Kristy Dybala	Point Blue
Mark Cowan	Larsen Wurzel & Associates
Scott Wright	cbec

Kelly-Slatten reviewed the meeting agenda, objectives, and Program Charter.

Recap and Update from June Bird Model AHG

Kristy Dybala (Dybala), Point Blue, reviewed content and decisions made during the last Bird Ad Hoc Group meeting with targeted discussion questions outlined below:

Priority Bird Species/Taxa

- Since wintertime floodplain connectivity is a focus, shorebirds (non-breeding) and waterfowl (non-breeding) are essential to address as Phase 1 priorities.
- Sandhill Crane (roosting and foraging) is now included as essential species for Phase 1.
- Future project phases may include additional analyses of other species, such as breeding shorebirds and waterfowl, riparian land birds, Burrowing Owl, Swainson's Hawk, Tricolored Blackbird, and Bank Swallow.

Proposed Workflow

- Dybala provided a recap of the workflow process, which starts with the hydrologic model development, before proceeding to habitat suitability evaluation, and then reviewing the bird benefits.

Habitat Suitability Criteria

- Based off feedback received during the last Bird Ad Hoc Group meeting, Point Blue reduced the waterfowl depth limit from 18 to 12 inches to reflect more optimal conditions for foraging dabblers.

- The Bird Ad Hoc Group discussed raising the depth for shorebirds from four to six inches at the previous meeting, but Point Blue chose to remain at four inches to keep estimates conservative.

Questions & Discussion

- Mark Petrie (Petrie), Ducks Unlimited: The waterfowl category should include geese. There are a couple issues when modeling geese:
    - Flooding status would be relaxed for geese since they occupy dry land. The proposed modeling approach would be:
        - Geese
            - Flooded and unflooded rice
            - Flooded and unflooded grain corn
        - Ducks
            - Managed wetlands
            - Flooded rice
            - Flooded grain corn
    - Geese compete with ducks so they would be concurrently modeled.

Crane Roosts

- Proposed crane roosting criteria includes a depth of approximately eight inches on the following managed wetland types: rice, corn, wheat, and pasture. Foraging in dry rice, corn, and wheat fields within five km of roost sites.

Questions & Discussion
Other comments on shorebirds or cranes?

- Getz: For consistency the front end of Crane season can move forward despite the hydrodynamics model starting on October 1st.
- Getz: Dabbling ducks compose the majority of the duck population.
    - Isola: diving ducks/waterfowl do appear in the Byway and Butte Sink during flood events when habitat is conducive to migration into the valley.
    - Greg Golet (Golet): Diving ducks should be acknowledged, but not necessarily need to be included in the model.
- Golet: The five-kilometer buffer for roosts is likely conservative.
- Golet: Cranes don't forage exclusively on dry habitat.
    - Getz: Depth criteria should be set to a value less than two inches if possible.

Model Details: Species Distribution & Bioenergetics Models
Model Types

- There are two model types in question:
    - Species distribution: Probability of observing a specific species on a landscape.
    - Bioenergetics: The energy supply versus the energy demand across a landscape.
- Point Blue proposes focusing on the bioenergetics model for Phase 1. The rationale being that bioenergetics is the approach used by the Central Valley Joint Venture to set conservation objectives for waterfowl and shorebirds.
- During future phases Point Blue can look into species distribution modeling.

Bioenergetics Model
- Dybala summarized basic components of the bioenergetics model

Bioenergetics: Energy Content
- Energy content for waterfowl is captured in the following categories for waterfowl across food density (kg/acre) and true metabolize energy (time)(kcal/g): moist soil seeds, rice, corn, and invertebrates
- Comparatively, shorebird's diet consists of benthic invertebrates resulting in less food density and true metabolize energy
- Values for flooded rice have been applied to all types of flooded agriculture given the lack of data on other crop fields.

Bioenergetics: Population Size & Energy Demand
- Approaches proposed by Point Blue:
  - Use CVJV objectives and model impact of changes to the program area within the broader Central Valley landscape
  - Down-scale the CVJV population objectives for the program area
  - Focus on energy supply and carrying capacity within the program area (bird-days)

Discussion & Questions
- Dybala: Within the model it would be possible to contrast how scenarios would compare to CVJV objectives. The same energy demand curves from CVJV would be employed for the model which also capture spatial and temporal variation of shorebird species.
- Getz: Would it be possible under approach three to evaluate overall energy supply and carrying capacity in the energy curve and forecast how long habitat will be suitable?
  - Dybala: That would be possible under approach one. Which would fold in information from outside the program area. While models exist from the CVJV we would have to subtract out the program area and that would necessitate new flood curves, etc.