

To: Dan Connelly, Pheasants Forever
From: Michael Casazza¹, and Cory Overton¹
Subject: AIM Desert Quail and Dove Progress Report

Progress Report

13 October 2015

Highlights—

- Researched survey methodologies specific to quail and dove.
 - Including road surveys, Call count, covey, and flush counts
- Summarized and explored existing population estimation datasets and spatial distribution of desert gamebird populations in California.
 - Breeding Bird Survey, Christmas Bird Count, Harvest Surveys
- Developed a framework to assess survey requirements and protocol to conduct sufficient surveys to develop a monitoring strategy.
 - Protocols developed from existing survey methodologies
 - Framework focused on identifying sources and extent of variation in population indices which translate directly to minimum change detection levels
- Investigated mechanisms to link population trajectory to landscape level habitat features such as those conducted using AIM protocols.
 - Both spatial and non-spatial statistical methods exist to infer relationships final decisions contingent on data characteristics
- Conducted literature searches to develop additional landscape/habitat metrics pertinent to desert gamebird ecology for incorporation into AIM protocols.

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Project Update -

Timing of the initial contract and required planning and project development that was necessary prerequisite to field activities delayed fieldwork in 2015. In lieu of field activities this spring, we conducted literature searches and consolidated existing data sources that have been instrumental in developing protocols for fieldwork in 2016 and structuring the research questions. Of the two large scale annually completed bird surveys (Christmas Bird Count and Breeding Bird Survey), only the BBS has sufficient coverage throughout the desert region to provide inform our survey framework. It is unlikely that sufficient expansion using the Christmas Bird Count methodology will be possible to achieve sufficient understanding of quail population trends and relationships with landscape attributes (Figure 1). Therefore, our initial approach will be to focus on the Breeding Bird Survey as a large scale approach to index population abundance and determine change throughout the landscape. However, Harvest survey Information may

Specifically, we have used results from existing survey methodology such as the Breeding Bird Survey to explore the current state of knowledge of species distributions, relative abundances, and trends through time. In addition, this year's data consolidation has enabled us to compile existing habitat data that is specific to the ecology of desert gamebird species. Our survey protocol framework includes developing as estimates of population size that are sufficiently precise to allow statistical certainty in a given rate of population change over a specified region. The ultimate goal is to combine spatially explicit population and habitat data throughout the desert region of California, but prior to that we can develop appropriate sampling protocols and recommendations to expand survey coverage that will provide more robust population estimates and greater confidence in change detection (Figure 2). This preliminary work will also assist in developing preliminary hypotheses on ecological drivers of gamebird population change and recommendations for additional metrics to be included in landscape habitat condition tracking using the AIM protocols. An example, provided in Figure 3, shows a clear southeast to northwest decline in Gambel's quail abundance and relatively undersampled regions in the vicinity of Edwards AFB and Kelso Dunes.

Figure 1. The distribution of Christmas Bird Count circles was deemed insufficient to provide estimates of desert gamebird population abundance and trends

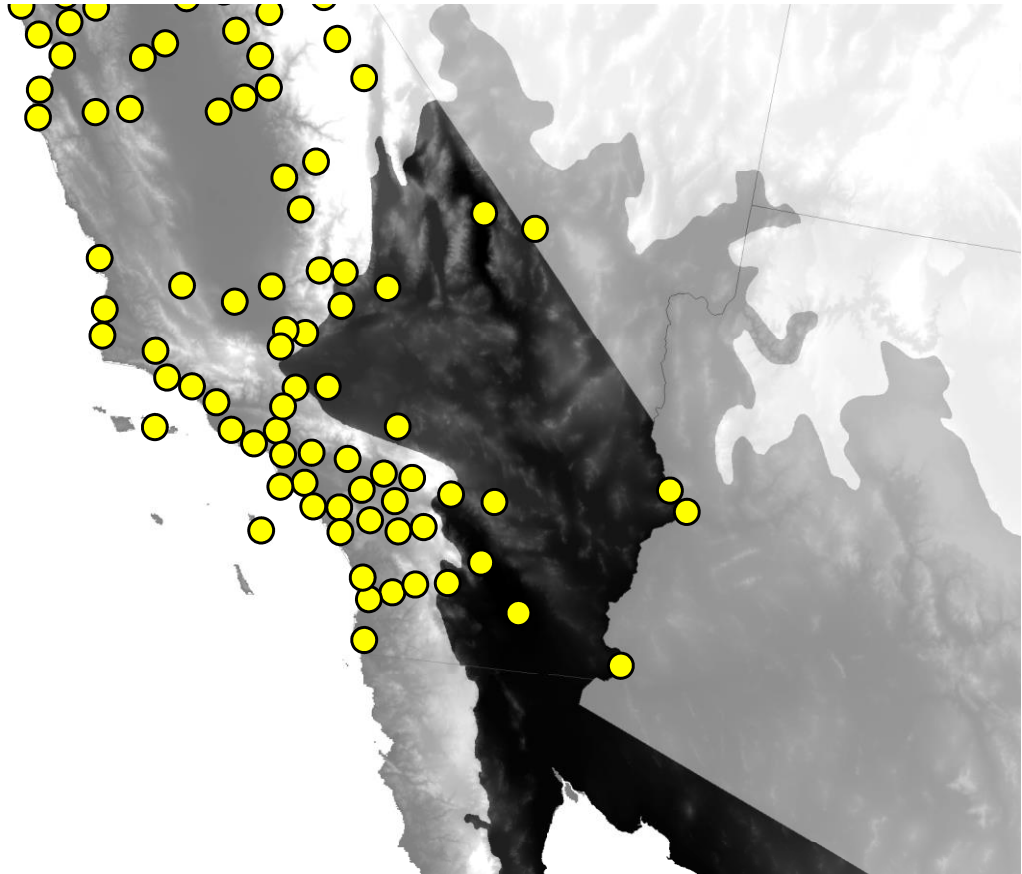
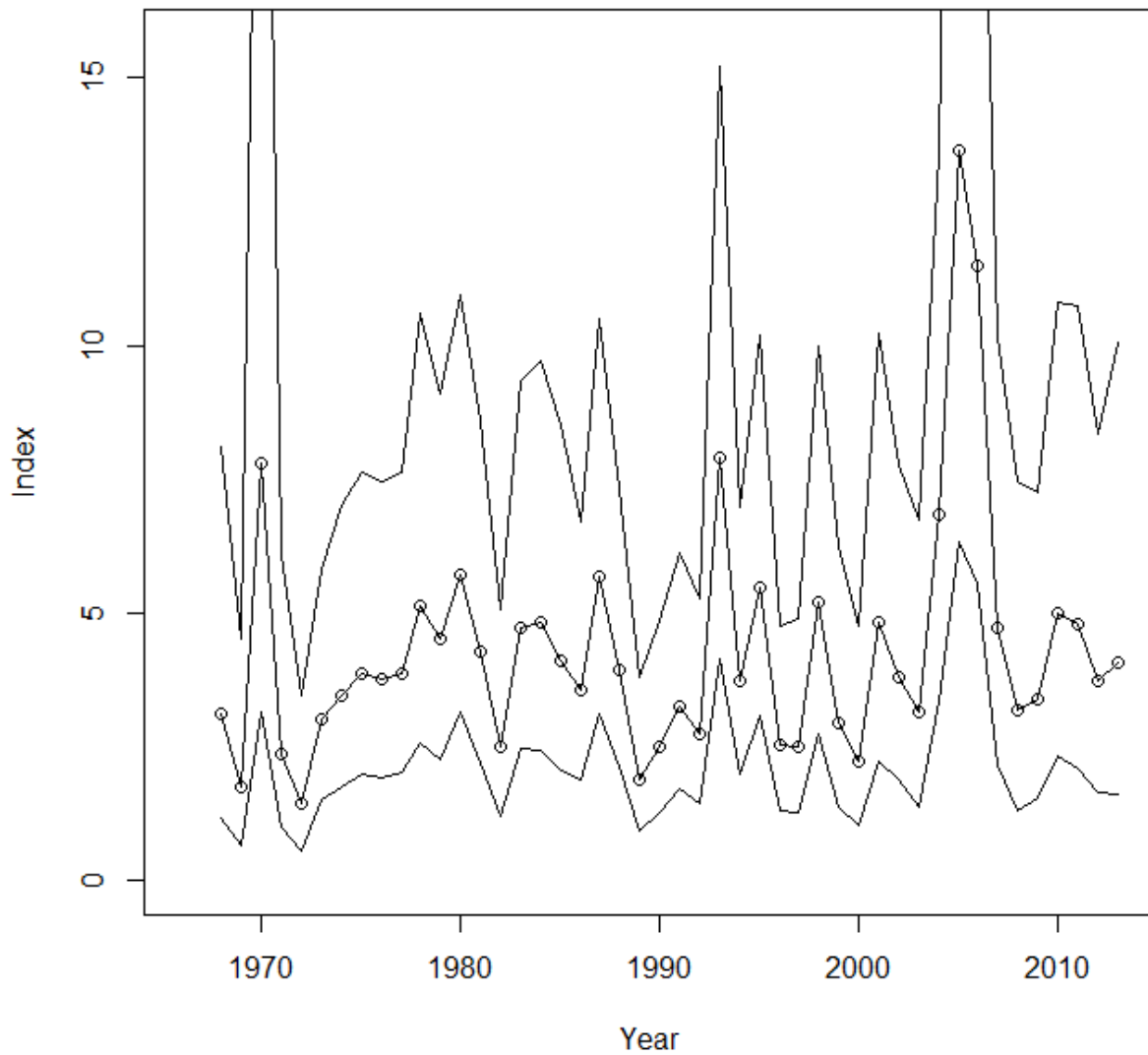


Figure 2. Breeding Bird Survey results for gambel’s Quail in California show characteristically high variability and relatively stable trends. Comparisons with additional methods of population assessment, such as game take surveys may or may not corroborate these trends. High year-to-year, or spatial, variability in counts reduces the confidence in determining any population change, particularly for low rates of change. More counts, and additional survey areas, are needed to maintain confidence in findings.



Upcoming Activities –

Currently we are initiating the hiring process for field staff and procuring resources for field activities beginning in February 2016. We are finalizing the field protocols and will use the data collected February through April, 2016 to develop a proposed monitoring strategy and provide recommendations for additional features applicable to gamebird populations that will improve habitat and population tracking in the future.

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