



## California Department of Fish & Wildlife

# Upland Game Bird Account Project Proposal

**Grant Name/Project Title:** Pilot Project for Pheasant Habitat Development in a Drought Impacted Landscape

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### **Issue/Problem Statement**

The current historic drought and ongoing water shortage issues have resulted in unprecedented fallowing, in the name of water conservation, of previously intensively farmed lands. With the changes in cropping patterns in much of the state in the form of trees and vines this trend in water shortages is likely to occur at increasing frequency. Couple this landscape change with a human population that has effectively doubled since the last big drought period in the mid to late 1970's and water shortages have become the new reality. If the managing agencies are going to try and come up with additional water yields they are going to be looking at high water demand crops to make up the shortfall. Among the crops which use a significant amount of water rice happens to be one of them, with approximately 5 acre/ft per acre applied and 2-1/2 acre ft consumed. A case in point involves the rice lands in the Sacramento Valley. Estimates of up to 20% of the rice acreage, or 200,000 acres will not be planted this year.

To date there has been little work and research into the types of cover vegetation which could be used to provide optimum habitat for upland species in this changing landscape of water shortage. Much of the previous work has been centered on providing nesting habitat for ducks. While certainly beneficial for nesting ducks many of these practices have had reduced value for upland species. Ducks only have the visit the upland for a total of about a month whereas pheasants and other upland species need to live in it the year-round. In fact some of the current direction toward grass planting may actually be a detriment to pheasants as chicks find great difficulty in foraging in a grass under-story as opposed to more of a forb related structure. Grasses also fail to provide the microclimate that produces moisture and associated insect populations. Ducks only need the cover as protection from predators during the breeding season while pheasants and other resident upland species require particular vegetation which will provide for their year round needs.

Current efforts in promoting cover crops on idled croplands have been met with a great deal of resistance from the water management agencies. Much of their concern centers of the issue of actual water transferred. The contention is that if vegetation is allowed to grow on a property that it depletes the water-table to the point that it must be replenished before a crop can be raised in the subsequent growing season. This, they contend would actually reduce the amount of actual water a transferee would be given credit for and is currently compromising water transfer efforts.

## Project Description

The Project proposes to establish a sixty-six acre demonstration site to test the viability of certain plant species as well as the wildlife response to that vegetation over a three year period. Property plantings will be utilizing Pollinator mixes of forbs, with some limited grasses, in various combinations to simulate the various season scenarios which might be experienced under various water transfer or idling programs. Planting at both the micro and macro level will be made to test both the viability of the individual varieties as well as trying to determine how well the individual species can compete amongst each other and volunteer vegetation. It is envisioned that high school students from Colusa High School will assist in the small plot seeding and maintenance. Hedgerow Farms, one of the pre-eminent suppliers of native plants, are donating the seed as well as overseeing the initial planting of the vegetation as well as assisting in evaluation of the levels of success in establishing suitable vegetation.

The site selected is a retired Conservation Reserve Program property northwest of Colusa approximately 3 miles. The property has had several modifications to it that enhance its value as a wildlife property while retaining enough of the agricultural character to serve as a viable test site. Approximately \$7,000 was spent in improvements to the property through NRCS funding to place several swales and ephemeral ponds. The site also has access to well water which provides additional opportunities for management options during the experimental trials. While most of the vegetation will utilize natural rainfall for germination, some irrigation may be helpful in establishing the sites to help initially reduce the existing seed bank. Every effort will be made at both the small seed plot level and large field experiment to have the ability to apply this on a much larger scale across the landscape outside of the test area.

The three planting scenarios, and concurrent plant response that are to be evaluated include a fall planting in November through the following November. This schedule is to replicate an annual planned retirement. The second planting will include an April planting, then being disked up in November, this is to replicated more of an unplanned or emergency retirement. Lastly, a November planting to remain in the same vegetative state for three years and then coming out in November of the third year. The final option is to explore the idea of more permanent cover establishment which would maximize the potential benefits of vegetation establishment.

Species to be planted include: *Acmispon americanus* (Spanish clover), *Madia elegans densifolia* (common madia), *Aster subulatus* (slender aster), *Lasthenia glabrata* (Goldfield), *Phacelia tanacetifolia* (Lacy phacelia), *Hemizonia* (spikeweeds), *Festuca microstachys* (three week fescue), *Helianthus bolanderi* (Bolander's sunflower), *Calandrinia ciliaqta* (Red maids), *Eschscholzia californica* (California poppy), *Grindelia camporum* (gum plant), *Oenothera elata hirsutissima* (Hooker's evening primrose), *Phacelia californica* (rock phacelia), *Symphotrichum* (Aster) *chilense* (chilensis) California/Pacific aster, *Artemisa douglasiana* (mugwort), *Acmispon americanus* (Spanish clover), *Asclepias fascicularis* (narrow leaf milkweed), *Asclepias speciosa* (showy milkweed), *Clarka unguiculata* (elegant clarkia), *Elymus trachycaulus* (slender wheatgrass) and *Elymus triticoides* (creeping wildrye).

In addition, two soil moisture probes will be installed in the test area to monitor soil moisture at one foot levels down to five feet. These probes will send data to a remote location every 15 minutes to document the effect which the vegetations is having on water in the soil profile.

Wildlife and insect counts will be made to properly evaluate the effect which the vegetations is having on the fauna on the test area. Counts will include but not limited to: crow counts, brood counts and flushing counts for pheasants. Flushing counts for duck nesting. Sweep-net counts for insects and general monthly observation counts for other wildlife at timed intervals.

**Expected Benefits**

If there is a positive benefit from the current water shortage it will come in the form of additional un-flooded upland habitat in the rice growing region. Previously much of the land was flooded to help with straw decomposition. In order to take full advantage of this circumstance it will be necessary to develop a vegetative cover program that is both acceptable and beneficial to the agricultural community, while at the same time providing high quality habitat for pheasants and other wildlife. The proposed project will provide some very real baseline data on plant types that will be suitable for wide scale application on idle lands. With the ongoing water issues and the need to meet upcoming emission standards through carbon sequestration standards it would not be unreasonable to expect in excess of 50,000 acres could be enrolled in a suitable and wildlife friendly cover crop. It was during the last “set-aside” program during the 1980’s when a similar amount of acreage was idled under the then existing Federal Farm Bill. During this time there appeared to be pheasants everywhere in the Sacramento Valley. It would be expected that virtually all of this land would be hunted by someone, certainly as much as half, or 25,000 acres, could be subject to public hunting.

Additional associated benefits with providing a suitable cover crop include significant positive public messaging and resource base data for increasing beneficial insects, flood control and air quality would also be expected to improve from the moonscape which tends to be the norm during past land retirement programs.

An annual report will be completed each year at the end of the calendar year documenting vegetative response, soil moisture and wildlife response to date. A final report is to be completed at the end of the fiscal year in the third year summarizing all of the data.

**Itemized Budget**

	Year one	Year Two	Year Three
Land Rental \$100/acre	\$6,600	\$6,600	\$6,600
<b>Land Preparation</b>			
Small Plots- 2 acres @\$264/acre	\$174		
Includes 1 burn @\$2/acre, at least two disking@\$40/acre and an herbicide treatment @\$45/acre			
Large Field-62 acres@ @\$22/ acre	\$1,364		
Includes one burn@\$2/acre and one disking@\$20acre			
<b>Seeding</b>			
Small plots 1-1/2 acres			
Seed \$675/acre	\$2,027		
Planting \$32/acre	\$48		
Herbicide \$45/acre	\$68		
Irrigations @50/acre			
Large field- 62 acres			
Seed \$200/acre	\$12,400		

Planting/Drilling @\$30 acre	\$1,860		
Seed Performance monitoring \$75/hour-20 hours	\$1,500	\$1,500	\$1,500
Soil Moisture Measurement Apparatus 2 @\$3,000 each	\$6,000		
Reporting	\$1,400	\$1,400	\$1,400
Wildlife Monitoring and reporting \$40/hour-96 hours	\$3,840	\$3,840	\$3,840
Overhead @12%	\$4,474	\$1,600	\$1,600
Total Project Cost	\$41,755	\$14,940	\$14,940

This project is to proceed from a period of funding availability, i.e. executed contract for 12 months. As anticipated, January 1, 2015 to December 31, 2015. FY 2014. The project as proposed will be for a period of three years ending in December 31,2017

California Department of Fish and Wildlife Region and location of proposed project:

Regions 4, 5 and 6

<b>Non-Governmental Organization and other Agency Contributions</b>	
Organization/Agency Name	
Pheasants Forever	\$3,840 in-kind wildlife monitoring 96 hours at \$40/hr
Hedgerow Farms	\$2,027 seed varieties for small plots
Victoria Farms	\$600 land rental
Total	\$6,467

<b>Total Project Funding</b>	
Item of Expense (salary & wages, equipment, supplies, etc)	Amount
Total Requested Funding	\$35,288
Total Matching Funds	\$6,467

Total Project Costs	\$41,755