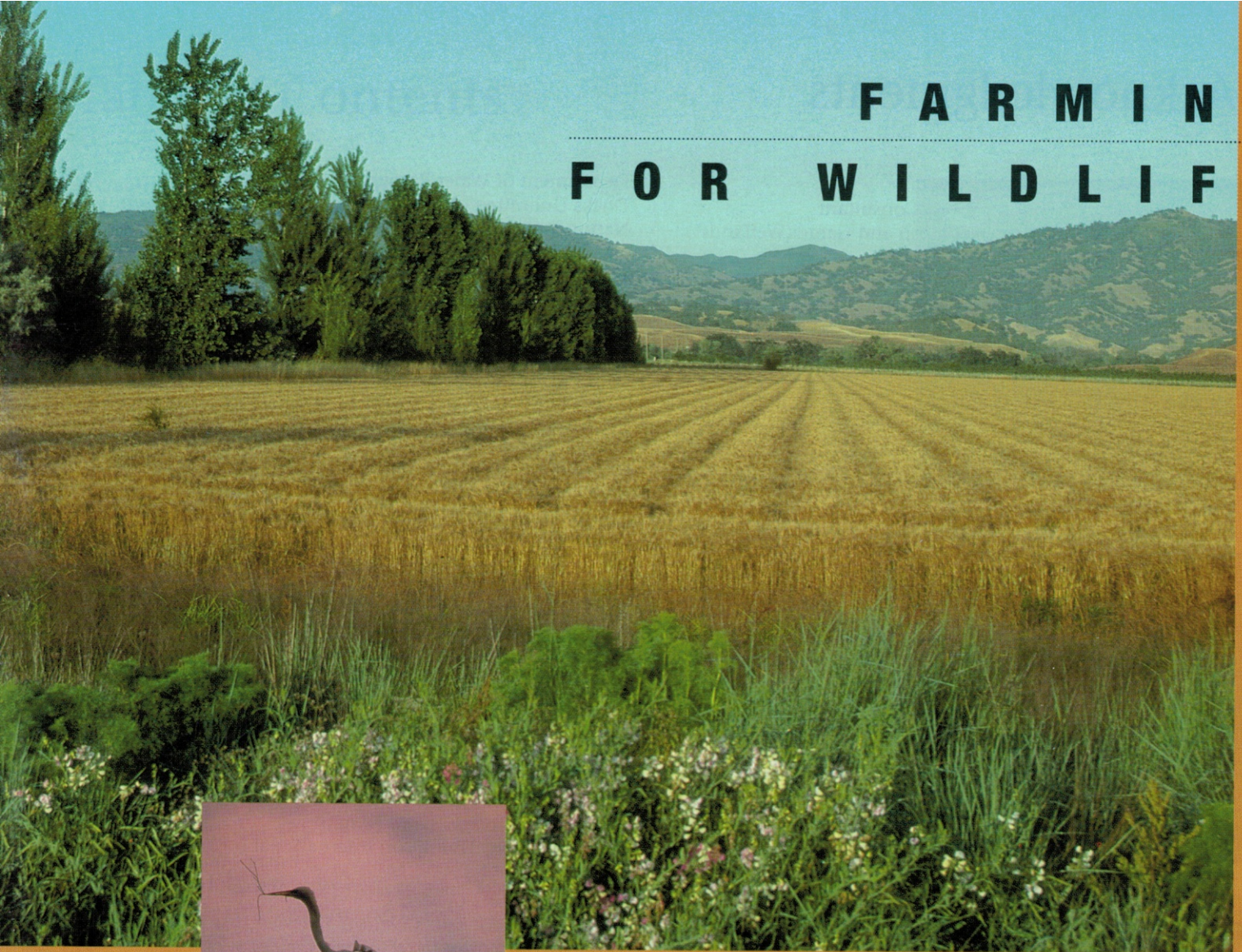


FARMING FOR WILDLIFE



VOLUNTARY PRACTICES FOR

ATTRACTING WILDLIFE



TO YOUR FARM



Managing Your Land to Benefit Wildlife

Many farmers who are building and maintaining successful farming traditions also enjoy wildlife and like seeing wildlife on the farm. Some of you would gladly adopt wildlife-friendly practices if you knew what to do, how to do it, and felt comfortable that the practices would not adversely affect present or future farming operations.

For those who are interested, help may not be too far from home. A number of Central Valley farmers have been using wildlife-friendly practices for years. Several of the farmers and their successes are featured throughout this brochure. Some have experimented on their own. Others have received help from organizations listed on the inside back cover of this brochure. Many of these practices may work for you, too.

This publication presents a full range of suggested practices. *They are all voluntary.* Some involve very little time or cost; others may take time to accomplish, involve a cash investment, or require that you adjust some farming routines. Even slight modifications of some farming practices will allow you to support and encourage a surprising array of wildlife. Ducks, doves, quail, and pheasants should benefit, and so will other species welcomed by farmers, such as songbirds, birds of prey, reptiles, and beneficial insects.

Some wildlife-friendly farming practices will also allow you to save money or help your farming operation by reducing problems with flooding, soil erosion, water quality, groundwater recharge, and noxious weeds. Still others can help you make money or diversify your income base by harvesting shelterbelt fuel wood or offering recreational opportunities, such as hunting or wildlife viewing.

Of course these practices must be considered in light of your farming goals, the specific requirements of your water contracts, or other farming activities, and general regulations regarding wetlands or endangered species. You need only consider those that fit your goals, resources—and comfort level. Some of your Central Valley neighbors have found that many of the suggested practices can be easily accomplished—without compromising their farming livelihood.

Even a small change on your part can create benefits for wildlife—and your farming operation.



California Quail.

What Wildlife Needs

All animals need *food, cover, water, and space*—in the right amounts, at the right locations, during the right times of year. Each species has special requirements. Mallards, for instance, require shallow ponds with accessible food and nearby upland fields with dense, vegetative cover that is 18 inches or taller for nesting. Pheasants commonly feed on waste grain, insects, and green vegetation and need thick cover nearby for escape and nesting. Doves require trees for roosting and nesting.

If you want your land to support many different kinds of animals throughout the year, it helps to offer a wide variety of plant communities and water. Without diverse habitat, only a few species may inhabit your farm. *Several organizations can provide you with specific information about meeting wildlife needs. See the inside back cover of this brochure.*

MANAGING CROP LANDS

Each year Central Valley farmers plant an average of 1.5 million acres of rice, corn, and other grains. During winter it's not uncommon for millions of waterfowl, shorebirds, and wading birds to feed and rest in flooded agricultural fields. Most of California's wintering waterfowl depend upon waste rice and aquatic invertebrates found in flooded, harvested fields. Spring farmlands also provide abundantly for wildlife. Wheat fields near standing water offer excellent nesting cover and support some of the highest densities of nesting ducks in the Central Valley. Rice levees with tall vegetation and fall-planted barley provide similar nesting benefits.

JACK KELLY CLARK/UC STATEWIDE IPM PROJECT



Ducks, pheasants, and other birds often nest in grain fields. Delaying the grain harvest for a few weeks—or even a few days—can substantially increase hatching success.

Alter your harvesting schedule

What to do:

March 15 to July 1 is a crucial nesting and hatching period for pheasants, ducks, and other ground-nesting birds. It's also a period when farmers normally begin spring harvesting activities. Harvesting machinery eliminates nests and can kill setting hens that remain on their nests. If your operation allows it, delay the grain harvest until at least June 15. When possible, wait until July 1; this protects hens that did not nest until late May. If you have several fields to harvest, save the fields closest to water for last; they may have the highest nesting densities.

Although early cuttings are necessary in most haying operations, *in some locations* a delay of a few weeks, or even a few days, may be possible and can significantly increase duck

and pheasant production. If you are able to delay your harvest for waterfowl, make sure that your duck broods survive by having summer brood water within two miles until at least July 15.

Benefits:

- Avoids destroying nests and displacing or killing nesting pheasants and ducks.

- Increases wildlife populations by allowing many adult ducks and pheasants to survive, successfully nest, and raise a brood.

- Increases waterfowl populations locally as young ducks that survive may return to the same area to nest.



Duck eggs in a field.

DUCKS UNLIMITED

Fred Smeds

Savage Island Farm, Fresno County

Savage Island Farm



Since Fred Smeds has been providing flowering plants as habitat for "good bugs" his vineyards and orchards have thrived.

Cover Crops in Vineyards and Orchards

"How do you get the yields and quality you do with all the weeds and stuff you let grow in your vineyards and orchards?" a neighboring farmer asked Fred Smeds. The neighbor had been eyeing the lush cover crops in and bordering Savage Island Farm's orchards and vineyards and couldn't figure out how Smeds managed such good harvests without the traditional spraying.

Smeds hasn't used a pre-emergent herbicide for seven years. Now that he's seen the advantages of cover crops and beneficial insects and the big cost savings on pesticides, he considers himself a cover crop and biological control convert.

"On most farms," Fred explains, "your monocropped field will provide a feast for whatever pest loves to eat your

crop. There isn't enough diverse, naturally occurring habitat to feed and house insects. Insects need diversity; a planted cover crop is essential."

Smeds observed that without plant diversity and a complex insect food chain, the pests thrive. "Every time you spray, you enhance conditions for them. The lack of natural enemies causes the pests to reproduce and each subsequent generation becomes more tolerant of the chemicals."

Smeds experimented with a five-acre block of ruby seedless grapes. The first year, after eliminating herbicides and pesticides, leafhopper damage reduced his packout rate by 10-to-15 percent. The second year, his losses were under 10 percent. "By the third year," Smeds explains, "the beneficial

insects thriving in my crop cover drastically reduced leafhopper numbers and I had no packout losses." He reports similar successes in his peaches, cherries, and plums. The Thompson seedless grapes have required a longer transitional period. The only insecticides he's used on them since 1988 are Kryocide or *Bacillus thuringiensis* and he's working to eliminate these.

Since his first cover crop of barley and vetch, Smeds has tried a variety of flowering plant mixtures that bloom continuously through June. "I like to avoid mowing until after the plants have gone to seed. The plants form a dry mulch that holds down dust and keeps the soil intact for summer traffic. The seed lies dormant until an August or September irrigation sprouts it and I get next year's cover crop for free."

Since he's been providing habitat for the "good bugs," his vineyards and orchards have thrived. He's eliminated most chemicals and expensive spraying regimens. And he and his family have enjoyed another benefit: a noticeable increase in wildlife.

A walk through the vineyards and orchards produces views of doves, quail, pheasants, and several species of songbirds and birds of prey—so many that a biologist from the Kearney Agriculture Center asked permission to do a bird survey. "The minimal damage resident birds do to my fruit is acceptable," says Smeds. "because their claim on my trees clearly keeps away marauding flocks of fruit-eating birds. By contrast, when I drive by a farm that practices clean farming I often see huge flights of birds circling and trying to land. The wildlife gives me and my family a lot of pleasure—but they also provide a clear payoff that's reflected on my bottom line."



Plant permanent or temporary cover crops between rows

What to do:

Instead of maintaining bare soil, try planting a cover crop of clover, vetch, or annual grasses between the rows. Avoid mowing between March 15 and June, or mow as late as possible; this is the peak nesting and hatching season for pheasants, quail, and other ground nesting species. Orchards with 18-inch grass stands, located near water, often attract nesting ducks. A 100-acre prune orchard in Sutter County had approximately 55 duck nests with 520 eggs in its cover-cropped areas.

Cover crops can provide habitat for many beneficial insects. To alleviate concerns about attracting unwanted insects or the potential for pest build up, contact some of the Integrated Pest Management resources listed in this publication for help with preplanning and to provide information about insect population dynamics.

Benefits:

- Provides excellent nesting, food, and

escape cover for a variety of wildlife species, particularly ground-nesting species. Also provides habitat for beneficial reptiles.

- Offers habitat for insects required by game bird chicks.

- Stabilizes the soil, reduces soil erosion and soil compaction, and helps control dust.

- Provides green manure and increases water filtration.

- Offers habitat for beneficial insects that can reduce pest damage and some of the need for pesticides.

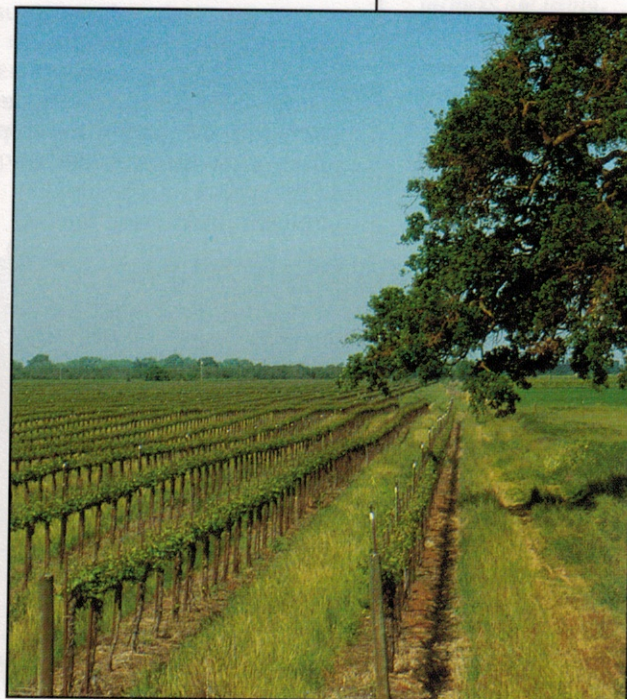
- Controls noxious weeds and reduces the need for herbicides.

- Lowers labor costs. Less disking will be required and it's less costly to mow grass stands than it is to repeatedly disc and apply herbicides to maintain "clean" areas.

- Allows accumulation of nitrogen-rich organic material. Be sure to monitor nitrogen compatibility with crop growth.

Cover crops planted between rows of this Sacramento Valley almond orchard (left) and this Lodi-area vineyard (right) help sustain beneficial insects that control pests and serve as excellent temporary habitat for nesting pheasants, quail, and other ground-nesting species.

ROBERT L. BUGG/UC SAREP



LANGE TWINS



Consider using Integrated Pest Management techniques

What to do

Many of you are already using some Integrated Pest Management practices on your farms to control insects, weeds, diseases, and vertebrates. Consider combining these practices into a "made for your farm" Integrated Pest Management (IPM) program that's scientifically-based, economically sound, and beneficial to the environment.

With IPM, pest management is accomplished by encouraging biological control; choosing resistant varieties or certified seed; using oils, pheromones, or selective chemicals; planting permanent borders and cover crops; adopting alternative cultivating, pruning, or fertilizing practices; rotating crops; modifying tillage and sanitation practices; choosing planting and harvesting times to avoid major pests; and modifying the habitat to make it less compatible with pest development. Some of these practices help wildlife, too, by creating seasonal habitat and reducing the presence of chemicals in the environment.

Pesticides are still used in most IPM programs, based on careful field monitoring. Specific products are chosen, particularly those that spare non-target organisms and/or those which have shorter active or residual periods. They are selectively applied, in a manner that is least disruptive to wildlife and the environment. Some have even been certified as acceptable for organically grown crops. In certain crops, an IPM program can include purchase and release of biological agents, such as predators, parasites, and pathogens, to further combat pests while reducing reliance on pesticides.

Farmers with IPM programs carefully track development of pest populations, weather, and crop development so corrective measures can be instituted when needed. These monitoring programs can help make less toxic pesticides more effective. Monitoring programs have helped reduce pesticide use in tomatoes, grapes, strawberries, apples, pears, almonds, walnuts, beans, sugarbeets, alfalfa, cotton, and other crops. For instance, many peach

growers have eliminated or substantially reduced the use of broadspectrum pesticides with carefully timed sprays of a microbial insecticide (*Bacillus thuringiensis*) for peach twig borer and by distributing pheromone dispensers to disrupt mating by the oriental fruit moth.

To maintain a farming livelihood, farmers know they must truly be stewards of the land. IPM programs offer a way to provide effective, cost efficient, and reliable protection for crops while sustaining the land, wildlife—and the farming way of life.

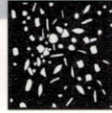
Benefits:

- Encourages wildlife populations by reducing the potential exposure of wildlife and beneficial insects to fertilizers, insecticides, and herbicides.
- Creates or enhances wildlife habitat in non-crop areas for beneficial insects and other species, including pheasants and quail.
- Provides seasonal cover for wildlife in fields or field borders planted with cover crops or insectary plants.
- Attracts birds that help suppress insect pests and consume weed seeds.
- Reduces use of fertilizers, insecticides, and herbicides and associated equipment and labor expenses related to application.
- Decreases soil erosion and dust when vegetation is planted in previously exposed areas.

IPM programs are developed specifically for your farm. Some farmers are using biological controls, such as predators, parasites or pathogens, to combat farm pests. The bigeyed bug pictured attacks mites, insect eggs, and small insects.



JACK KELLY CLARK/KUC STATEWIDE IPM PROJECT



Avoid discing fallowed fields

What to do:

Instead of discing and applying herbicides to fallow fields to control weeds, let vegetation reestablish while the fields are idle. Experiment with a small area; you may find that your farming operation can tolerate some weedy areas. Consider the proximity of neighboring farms when choosing these areas. When undiscd fields are near public roads or buildings, you may need to disc fire breaks or take other fire precaution measures.

If water is available, you can produce a lush growth of smartweed or other wildlife foods on undiscd fields by irrigating them once or twice during late spring and summer, as needed. Considering using water drained from recently planted rice or other crops in nearby fields. Undiscd fields will attract rodent-eating birds of prey. You may entice the hawks or owls by providing roosting perches in the fields or installing nest boxes. If, however, your objective is to

use fallowed areas for duck or pheasant nesting or brood areas, avoid attracting hawks or owls as they will prey on the ducklings and chicks.

Benefits:

- Provides a large area with vegetation that offers seasonal food and cover for ducks, pheasants, song birds, and other species
- Attracts northern harriers, short-eared owls, and other birds of prey that help reduce rodent populations throughout the farm.
- Reduces the labor and expense associated with routine discing.
- Reduces wind and water erosion.
- Can increase organic matter in soil, which can improve water infiltration, moisture retention, and overall soil fertility.
- May only have a minimal effect on your bottom line, depending on your operation.

USING FALLOWED FIELDS

Fallowed fields and areas that are temporarily out of production offer excellent opportunities to try some wildlife-friendly practices with fast results. The fact that these areas may only be available for a short time is not a significant drawback for wildlife; pheasants, waterfowl, song birds and other species are quick to take advantage of these productive habitats. Your planting schedule and current regulations for your crops may allow you to use fallowed fields to provide nesting habitat; you may also be able to flood these areas to offer spring duck brood habitat. If you're interested in some of these practices, but have concerns regarding endangered species, seek advice from your local fish and game biologist; ask about the new program being developed by wildlife and farming organizations. You may also wish to check with the U.S. Fish and Wildlife Service, Army Corps of Engineers, and your water provider, as appropriate.



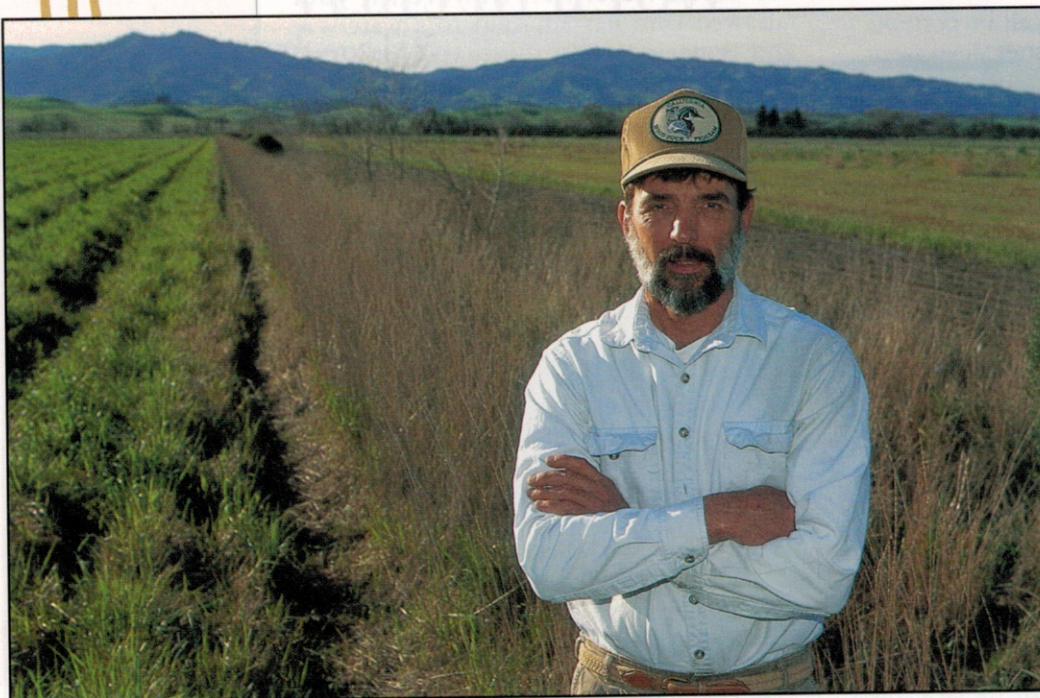
Natural vegetation growing on this fallowed field provides food, cover, and nesting habitat for many species.

Farmer Profile

John Anderson

Hedgerow Farms, Yolo County

JACK KELLY CLARK ©



For more than a decade John Anderson has established native vegetation systems in non-farmed areas of his farm.

Planting Hedgerows, Road Corridors, and Unused Areas

When Charlie Rominger tells people that Road 88 is the best stretch of road in Yolo County, he's talking about the west side of the road, just north of John and Marsha Anderson's home on Hedgerow Farms.

Rominger is referring to the lush native trees, grasses, and insectary plants bordering roads and fields, the ponds, and the often visible wildlife associated with Anderson's 500-acre farming operation. It's a view you can see any season of the year because these non-cropped areas are not clean-farmed.

"Frankly, I hated being surrounded by a barren landscape from plowdown to spring planting," says Anderson. "I also missed the presence of wildlife. Yolo County used to boast one of

the state's finest pheasant populations."

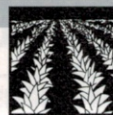
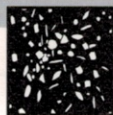
Since 1978, Anderson has been planting his berms, borders, equipment yard perimeters, and roadside corridors with native grasses, shrubs, and trees to recreate habitat for native wildlife. After a decade-and-a-half of testing and refining native plant habitat corridor systems, he has succeeded in reestablishing outstanding wildlife habitat and has used native vegetation to virtually eliminate expensive routine spraying and disking programs.

"Face it," says Anderson, whose farm produces irrigated row crops and native grass seeds, "we spray, disk, and scrape to control and eliminate noxious weeds. Clean farming

should mean weed-free, not vegetation-free. A balanced, self-sustaining native grassland simply out competes any weedy invasion. And the excellent, year-round wildlife habitat these vegetated corridors provide has no negative impact on farming practices." Some of Bruce and Charlie Rominger's fields abut Anderson's vegetated borders and they concur—there's no significant impact on their crop production. In fact, they were so impressed they've initiated some native plant corridors of their own.

Growing native grasses requires an initial investment and maintenance effort, but establishing native grass stands is much like growing permanent pasture or alfalfa. Since perennial grasses grow more slowly, the first year is important. Properly-timed planting, selective herbicide spraying, and mowing are requirements for success. Native seed prices have come down substantially and a wide variety of native and non-native perennial grass seed is now available. Through testing, Anderson and others have also eliminated much of the guesswork in managing native habitat corridors.

One look at Anderson's native habitat corridors shows that they provide weed and erosion control. They significantly reduce disking and spraying expenses. "The benefits for wildlife have been nothing short of astounding. Over 100 bird species use the farm throughout the year, including pheasants, doves, and quail that are harvested during hunting season. And the beneficial insects, spiders, reptiles, and amphibians provide clear farming benefits," says Anderson. "I don't know any farmers who have given it a serious try that want to go back to clean farming."



Plant perennial vegetation in areas that can stay undisturbed

What to do:

Instead of repetitive disking, burning, and herbicide applications to keep unused areas weed-free, establish a complex of permanent vegetation to attract and sustain dozens of species of wildlife—from deer to doves. Consider planting perennial grasses, shrubs, trees, and other plants in road borders, fencerows, equipment yards, field borders, uncultivated uplands, or other areas that will remain undisturbed.

For levees, ditch banks, and canals, get some help selecting perennial plant varieties that are compatible with water flow and ditch maintenance requirements.

A wide variety of *native* and *non-native* perennial plants, shrubs, and trees can help create wildlife habitat diversity. Though they take several years to become established, native perennial vegetation systems offer many farming advantages—including suppression and elimination of invading noxious weeds. One Yolo County farmer counted more than 100 species of birds in non-farmed areas he had planted with native perennial vegetation, including nesting pheasants, waterfowl, and songbirds, as well as other species that are beneficial to farming. Many of his planted fencerows, road borders, and levee banks are connected, thus creating wildlife corridors and considerably increasing the value of this new habitat for wildlife.

Benefits:

- Provides year-round habitat for a wide variety of wildlife species on otherwise unproductive land—particularly from fall plowdown to spring planting, when adjacent croplands are fallow.

- Provides breeding, nesting, and denning habitat for many bird and mammal species, including fawning and escape cover for deer.

- Saves money by eliminating the need for repetitive disking, scraping, and burning to keep unused areas clean.

- Saves money by gradually reducing the need to spray to control star thistle, puncture vine, Johnson grass, bindweed, and other undesirables.

- Reduces or eliminates erosion and dust normally associated with keeping these areas clean.

- Results in low maintenance habitat when fully established, which should offset the initial expenses for seeds and weed control.

- Can reduce the need for pesticides and related application expenses, in many cases, by encouraging beneficial insects and insect-eating birds.

- Increases water infiltration and decreases the rate of water runoff.

- Improves water quality, if appropriately planned, by filtering out contaminants before they enter nearby irrigation ditches or sloughs.

- Works well with drought-tolerant species on appropriate soils.

- Offers income opportunities by attracting or increasing populations of pheasants, quail, and other hunted or viewed species.

- Should not interfere with your farming operation and converts barren areas into those that are productive and beautiful.

TAKING ADVANTAGE OF NON-FARMED AREAS

Nearly every farm has irregularly-shaped areas, equipment yards, levees, roads, or other uncultivated land that can be converted to wildlife habitat without affecting farming operations. A border along a road or a one-acre corner that is not used for crops can attract a wide variety of animals, including beneficial insects. By choosing the proper plants you can also virtually eliminate expensive disking, burning, and herbicide regimens in these areas. Contact some of the agencies and organizations listed on the back cover for advice on selecting plants that will be compatible with your soils, water supplies, and crops.



Trees from a wind break and flowering plants and native grasses form a border along this wheat field.

JOHN ANDERSON

Planting Native Vegetation in Non-farmed Areas

Native vegetation systems are the grasses, shrubs, and trees that originally grew in California soils. Over time, these plants have adapted to and can thrive in specific local soil types, water cycles, climate conditions, and other factors. Corridors of mixed native perennial grasses and other vegetation can be planted along roadsides, berms, ditch banks, canals, field borders, and other non-cropped areas *without interfering with farming operations*. These California natives are friendly to wildlife because of the rich and sustainable mixtures of food, cover, and habitat they offer. One Yolo County farmer counted more than 100 species of birds in non-farmed areas he had planted with native perennial vegetation, including nesting pheasants, waterfowl, and songbirds.

In addition to attracting wildlife species, many of which are beneficial to farmers, native plant systems offer many other



It may be necessary to protect young trees from browsing deer and rodents until they become established.

farming advantages. For example, once they're established native grasses suppress and eliminate unwanted vegetation and attract beneficial insects. It usually takes native grasses two-to-three years to crowd out competing weeds. During this period the area will require spot spraying, mowing, managed grazing, burning, or other typical management activities that can mesh with your work crew schedules, existing equipment, and other farming activities. Established stands are

essentially maintenance free, eliminating the need for expensive pesticide and discing programs. These long-lived perennials have extensive root systems that enhance water infiltration and control erosion. Most tolerate drought, fire, mowing, and traffic. By planting species that flower at different times of year, native plants can also provide pollen and nectar for many species of beneficial insects that are helpful in controlling farm pests.

Native plant systems can mimic natural landscapes; a roadside or field berm can duplicate a grassland or a shelterbelt of native trees can mimic a riparian edge. These areas can add beauty to the farm, provide valuable habitat for wildlife—and eventually reduce labor and expense in your farming operation.

Many speciality nurseries carry supplies of native grasses, shrubs, and trees and native seed is available from some seed dealers. Contact your local NRCS or RCD offices, the California Native Plant Society, or the California Native Grass Association to help you locate local seed sources. A number of cost-share programs are also available to help interested farmers get started with natives.

Much like the native grasslands in early California, this horse at Hedgerow Farms makes his way through blue wild rye that is shoulder high.

JOHN ANDERSON



TAKING ADVANTAGE OF NON-FARMED AREAS

	NEAR WATER	HEDGEROWS	NON-FARMED AREAS
TREES			
Live Oak	X	X	X
Valley Oak	X	X	X
Blue Oak		X	X
Black Walnut ¹	X	X	X
Sycamore	X	X	
Black Willow	X	X	
Red Willow ¹	X	X	
Cottonwood	X	X	
White Alder	X		
Box Elder	X	X	
SHRUBS			
Coyote Brush	X	X	X
Quail Bush		X	X
Toyon		X	X
Coffee Berry		X	X
Redbud	X	X	X
California Buckwheat		X	X
California Rose	X	X	X
California Blackberry	X	X	X
Button Bush	X		
Dogwood	X		
Sandbar Willow	X		
Wild Grape	X	X	
GRASSES			
Creeping Wild Rye	X	X	X
Blue Wild Rye	X	X	X
Meadow Barley	X		X
Molate Fescue	X	X	
California Barley		X	X
Perennial Rye	X	X	X
Yolo Slender Wheatgrass	X	X	X
Tall Wheatgrass ²		X	X
Perla Koeagras ²	X	X	X
Lana Vetch ²	X		
Deer Grass	X		
Purple Needlegrass	X	X	X
Nodding Needlegrass		X	X
Foothill Needlegrass		X	X
California Onion Grass		X	
Pine Bluegrass	X	X	X
Squirrel Tail		X	X
California Brome		X	X
Idaho Fescue			X
Bent Grass	X		X
Tufted Hairgrass	X	X	
Slender Hairgrass	X		X

¹Not well suited for central and southern San Joaquin Valley.

²Not a native plant



Plant shelterbelts bordering or between fields



JOHN ANDERSON

This shelterbelt protects tomatoes from the wind and also serves as excellent wildlife habitat. Choose tree varieties of varying heights to attract many types of wildlife species.

What to do:

Consider the direction and extent of prevailing winds and plant cottonwoods, sycamores, willows, oaks, black walnuts and other tall vegetation to shield your cultivated fields. The most effective shelterbelts include a mixture of several layers of evergreen and deciduous shrubs, such as coyote brush, box elder, toyon, cottonwoods, and oaks. Contact some of the resources listed on the inside back cover to help you select varieties that are suitable for your soil, climate, and site conditions.

To provide sheltering benefits for your crops, the shelterbelt should be 15 to 20 feet wide. The young trees and shrubs will require weed control and irrigation to become established. In years when adjacent crops aren't irrigated, riparian shelterbelt plantings on shallow soils (less than four feet deep) may require periodic irrigation. If you run livestock in adjacent fields, you will need to fence the young trees until they are well-established.

Wildlife will be drawn to the shelterbelt very quickly. One study found 92 different bird species using a shelterbelt during a

single summer. It will take a few years for your farming operation to fully benefit.

Benefits:

- Provides food, cover, resting and breeding habitat, and migration corridors for a wide variety of animals, including deer, pheasants, quail, doves, herons, egrets, song birds—and birds of prey that can help control rodent populations.

- Dampens winds and shelters downwind croplands for distances up to 20 times the height of the trees. A plot of well-established trees can shelter distances of 300 to 600 feet.

- Reduces crop desiccation and retains soil moisture.

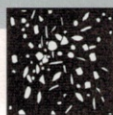
- Reduces soil erosion and, if appropriately located, filters runoff to improve water quality.

- Catches dust from adjacent roads.

- Protects grazing animals from chilling winds and hot sun..

- Can harbor beneficial insects that help control pests on adjacent fields.

- Provides privacy and buffers sound from nearby roads.



TAKING ADVANTAGE OF NON-FARMED AREAS

Install artificial nesting and/or roosting structures

What to do:

Artificial nesting structures work! Wood duck nesting boxes and song bird houses are popular, commonly-used structures. Many people have also had success using Canada goose platforms, mourning dove cones, and nesting cylinders for mallards. Artificial structures are available for many types of birds of prey, song birds, and bats. Learn about the specific roosting needs of the species you're trying to attract and get advice regarding which structures are most suitable for your property. All nesting structures require annual maintenance, such as resetting support posts, resealing nesting structures to posts or trees, and removing and replacing nesting materials. The construction and installation of nesting structures can be fun projects for the whole family.

Benefits:

- Provides additional nesting habitat in areas that meet other food, water, and cover requirements.

- Increases populations of locally breeding wildlife species, particularly wood ducks. The California Waterfowl Association has distributed and installed more than 5,000 wood duck nesting boxes since 1991 and 68 percent of the boxes have been used.

- Encourages selected species to return each spring to nest on your land.

- Offers nesting habitat to many species farmers would like to encourage, such as barn owls, screech owls, American kestrels, flycatchers, wrens, blue birds, swallows, and insect-eating bats.

- Provides a fun, outdoor activity for the whole family.



LARGE TWINS

Nest boxes serve as habitat for tree swallows (left), owls (right), and other birds that help control farm pests.

Beneficial Birds That Use Nest Boxes

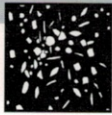
Many birds that can benefit your farming operation use artificial nesting structures if they are built and placed properly. You can contact Audubon Society or California Waterfowl Association to get nest box plans and advice.

Wood Duck
American Kestrel
Barn Owl
Screech Owl
Hairy Woodpecker
Common Flicker
Western Bluebird
Mountain Chickadee

Ash-throated Flycatcher
White-breasted Nuthatch
Tree Swallow
Violent Green Swallow
Plain Titmouse
Bewick's Wren
House Wren

VIRGIL KETNER





TAKING ADVANTAGE OF NON-FARMED AREAS

Plant perennial vegetation on ditch slopes or clean only one side of ditch each year



What to do:

You can provide good wildlife habitat near water, eliminate noxious weeds, and save on ditch maintenance costs by planting perennial vegetation on ditch or levee slopes. It will take two-to-three years to establish permanent vegetation, during which time spot spraying or other management activities may be necessary. A combination of grasses and rushes of varying heights can be selected that provide good cover without impeding water flow.

In areas where siltation is a problem, it may not be feasible to plant self-sustaining perennial vegetation. In these cases, consider cleaning only one side of the ditch or levee slope each year. The vegetation on the remaining side can continue to provide wildlife habitat and, in most cases, should not interfere with water delivery operations.

If it is necessary to burn ditch slopes, try to delay burning until August, when nesting has been completed. Whenever possible, leave trees and shrubs that don't interfere with ditch maintenance activities. When applying herbicides, try to choose those that affect only broad leaved plants; the grasses that remain will support wildlife and help prevent ditch erosion.

Regulatory agencies to contact:

Irrigation District.

Benefits:

- Offers habitat for wildlife near water throughout the year.
- Stabilizes banks and reduces soil erosion.
- Can reduce ditch maintenance costs.

Clean just one side of your ditches each year to help reduce maintenance expenses and provide habitat for waterfowl broods, ground-nesting birds, reptiles, and amphibians.



Establish vegetation adjacent to sloughs, streams, and ponds

What to do:

Riparian areas—plants and trees associated with water—support more wildlife species than any other type of habitat and are a significant complement to other farmland habitats. You can considerably enhance the value of ditches, sloughs, and other privately-owned waterways by leaving or planting trees and other tall vegetation adjacent to these aquatic systems. Trees that provide shade help to eliminate problem vegetation. Planting perennial grasses and sedges helps to eliminate weeds.

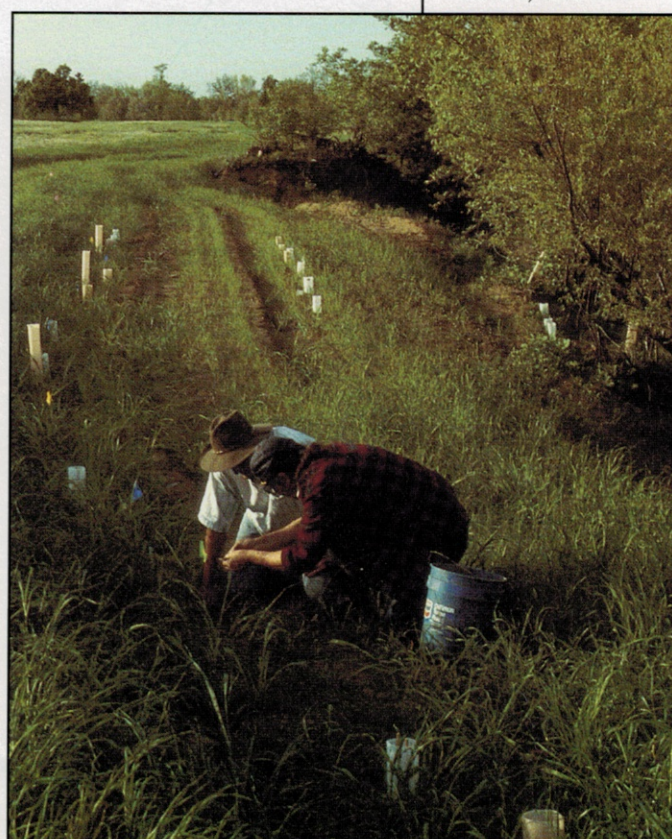
When you plant, be sure to allow for periodic maintenance of waterways. Place temporary shelters around young trees to protect them from cattle, deer, beaver, jackrabbits, ground squirrels, and other species. If you use appropriate species and seed sources the habitat should require no

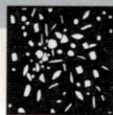
special care once it is established (unless beavers are plentiful). Routine maintenance will be required to ensure adequate flow capacity of the waterway.

Benefits:

- Offers vegetation of varying heights for songbirds, small mammals, and upland game birds. Established trees shelter deer and fawns and offer roosting or nesting areas for hawks, owls, and other birds.
- Provides concealing vegetation near water that wildlife use as travel corridors to reach nearby wildlife habitat.
- Stabilizes banks and reduces soil erosion.
- Protects adjacent fields from desiccating winds and dust.
- Can reduce maintenance costs if you clear one side of the ditch each year.

(left) Cultivated vegetation adds extra value to this farm pond. (Right) This field bordering a slough is being planted with perennial grasses, shrubs, and trees.





Leave some ditches and sloughs flooded year-round

What to do:

The grains and other crops that may initially attract wildlife to your land provide only food and cover. To attract and keep wildlife on your land, where it's feasible offer reliable sources of water by flooding some ditches and waterways year-round.

Benefits:

- Offers good pair water sites for prenesting local ducks.
- Provides wildlife with stable sources of drinking water and riparian and aquatic

habitat during periods when they most need it.

● Offers travel corridors for many species; these waterways often enable duck broods to reach brood ponds on other portions of the farm.

● Provides riparian habitat for fish and other aquatic species.

■ Aids in ground water recharge with some soils.

■ Offers stored water sources for firefighting.

If water is available, turn your farm into a year-round haven for wildlife by leaving water in some ditches or sloughs throughout the year. (Inset) Gopher snake.



JOHN ANDERSON

JOHN ANDERSON

NAME OF ORGANIZATION	PRACTICES (see description below)																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
BUREAU OF RECLAMATION					X												X			X
CALIFORNIA NATIVE GRASS ASSN.						X						X	X						X	
CALIFORNIA RICE INDUSTRY					X												X			
CALIFORNIA FARM SERVICE AGENCY						X	X					X	X	X	X		X	X	X	
CALIFORNIA WATERFOWL ASSOCIATION	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
COMMUNITY ALLIANCE WITH FAMILY FARMERS						X	X		X			X								
CENTRAL VALLEY HABITAT JOINT VENTURE			X	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X
DEPT. OF FISH AND GAME	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
DEPT. OF FOOD AND AGRICULTURE	X	X					X													
DEPT. OF FORESTRY & FIRE PROTECTION							X					X	X						X	
DEPT. OF PESTICIDE REGULATION						X	X	X	X			X	X	X		X	X		X	
DEPT. OF WATER RESOURCES											X	X					X			X
DUCKS UNLIMITED	X			X	X			X		X	X					X	X		X	X
NATIONAL AUDUBON SOCIETY												X		X	X					
NATURAL RESOURCES CONSERVATION SERVICE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
THE NATURE CONSERVANCY					X	X	X					X	X						X	
UC COOPERATIVE EXTENSION, AGRICULTURE				X		X	X					X								
UC COOPERATIVE EXTENSION, WILDLIFE	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
UC IPM PROJECT							X													
US ENVIRONMENTAL PROTECTION AGENCY	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
US FISH AND WILDLIFE SERVICE					X	X	X				X	X	X	X	X			X	X	
YOLO COUNTY RCD			X		X	X	X	X	X		X	X	X	X	X	X	X	X	X	X
WILDLIFE CONSERVATION BOARD (DFG)												X		X	X		X	X	X	
NAME OF ORGANIZATION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

The following practices are featured on pages 7 to 38.

1. Alter harvesting schedule	12. Plant perennial vegetation systems in undisturbed areas.
2. Change harvesting pattern or reduce harvesting speed.	13. Plant shelterbelts bordering or between fields.
3. Leave some crop unharvested.	14. Install artificial nesting and/or roosting structures.
4. Delay fall tillage.	15. Plant wildlife food plots.
5. Flood harvested fields.	16. Plant vegetation/Clean only one side of ditch each year.
6. Plant permanent or temporary cover crops between planted rows.	17. Build tailwater ponds or holding ponds.
7. Integrated Pest Management.	18. Establish seasonal ponds within 2 miles of good nesting cover.
8. Avoid disking fallowed fields.	19. Establish vegetation adjacent to sloughs, ponds, and streams.
9. Plant set-asides with vetch, etc.	20. Leave some ditches and sloughs flooded year-round.
10. Try to fallow same field for three years.	Please note: Help may also be available from your local agriculture commissioners and NRCS, RCD, FSA offices or cooperative extension.
11. Flood all or some fallowed fields.	