

A Walnut Creek Open Space Foundation project



WILDLIFE HABITAT IMPROVEMENT

How do we restore open space in the Bay Area from grazing land to habitat for native wildlife where none exists? How do we create a bond with the citizens and empower them to take 'ownership' of the new open space lands? How do we show them how to become good stewards of the lands?

This is the story we would like to share about how we got started creating wildlife habitat where no one thought possible and about our native creatures who have benefited from our projects.

The Walnut Creek Open Space Foundation is a non profit organization that works to preserve and restore open space land owned and operated by the City of Walnut Creek. In 1974 Citizens voted for a bond measure to preserve 2,400 acres of prominent ridges and rolling hills as open space. We now have 2,700 acres of public open space in Walnut Creek.

The Foundation has on going volunteer projects in the open space with the Oak Tree Restoration Project, Native Grass Restoration Project, Heather Farm Restoration Project and Wildlife Habitat Improvement Project.

The projects are funded by membership dues and occasional grants for specific projects. The Foundation functions like an old fashioned “barn raising”, where volunteers help each other work on projects.

None of the projects are very difficult and it’s always a good excuse to be out in the open space. Then there is the satisfaction of watching projects mature, this fuels the desire to do more. With habitat improvement, there is no failure; just learning by discovering what works.



A view of Shell Ridge from the top of Kovar trail in Walnut Creek Open Space.



Habitat improvement began 19 years ago with California quail.

In 1995, Open Space Foundation board member Bob Wisecarver noticed a decline in the California quail population around Borges Ranch in Shell Ridge area of Walnut Creek. He wanted to create habitat for them where there was none.

The basic principles of wildlife habitat improvement are simple: provide cover, food and water. How you accomplish this is pretty much a matter of imagination and creativity.

Wisecarver began by convincing the Open Space Foundation Board to pay for fencing to keep cattle out of a swale that contained a seasonal stock pond to make the water source available for wildlife. It was a formidable task talking the Board into spending \$1,500 to construct fencing. The Board struggled to envision how the nonnative grassland could be transformed into something native birds and wildlife might find useful.



This is the swale and stock pond above Borges Ranch in Shell Ridge open space as it was in 1995, non-native grassland with no cover for birds and smaller wildlife to use a valuable source of water.



A Cub Scout pack begins the process of creating cover around a stock pond by taking willow cuttings and sticking them into the mud as deep as possible around the pond. This kind of planting from cuttings is done with 2 ½ foot long cuttings in the winter, before the willows bud. In the spring, the willows will take root in the new wet environment.



After two years, this is the result of two hours of sticking willow cuttings in the mud. 'Plant cuttings in winter and enjoy the results in spring'.



We began to provide cover by planting Quail Brush and Coyote brush purchased from the Watershed Nursery, a native plant nursery in Point Richmond.



Preparation of a seed bed for planting cover plants is done after the first rains of the season.



Freshly planted coyote brush plants from the Nursery will require watering every 10 to 14 days during the summer until fall rains arrive.



Watering nursery grown plants is very labor intensive, but it is always a good excuse to go out and enjoy being in our open space.



Watering in our open space requires hauling 1 gallon containers to planting sites. Plants require watering for 2-years or until the plants are established.



We eventually learned better methods of watering using spray backpacks to water plants



We found a better method of planting by collecting quail bush, coyote brush and black sage seed in the fall, then planting seeds after the first rains in winter.



Different plants produce seed for collection at various times. We have to watch when plants go to seed for collection for our projects.



Seed beds are prepared and planted when soil moisture is good enough to start seeding as winter rains begin. We depend on rain in winter and spring to establish seeds.



We did not notice the success of coyote brush seed planting until grass's dried, revealing fresh green growth of coyote brush.



Planting from seed, we now spend our time eliminating competition for soil moisture by weeding out unwanted plants to allow our plantings to use all of the available soil moisture.



A Praying Mantis on an empty water jug watches us watering plants in North Lime Ridge – one of the smaller creatures we get to enjoy seeing while working on our open space projects.



We go out on a sunny late January day, rake off the layer of new grass down to dirt, scatter seeds on the dirt and rake the seeds into the dirt.



One method of building brush piles is using old pallets, then using large branches on the bottom layer and smaller branches on the next layer. Brush piles can be constructed anytime of the year.



This brush pile in North Lime Ridge comes with housing dug by ground squirrels for future residents.



In the spring, discover which plants in the seed mix are growing. In this area it's Coastal Sage that happened to like the area. We don't know what was growing before cattle began grazing 150 years ago as those seeds are long gone. A variety of native species of seeds are planted and the species that like the area grows in the location.



This is another method of building brush piles using downed oak tree limbs with no leaves. Cutting them up and hauling them to the site for assembly. The large branches go on the bottom in one direction, with the next layer pointed in the opposite direction as you build up the brush pile.

In our grasslands, there is no cover for small wildlife to hide as the previous use of the land was for cattle production. Brush piles are an important part of creation of wildlife corridors as they provide cover for birds to hide in as well as housing for small wildlife and insects. Planting cover plants as well as installing brush piles allows safe movement from one area to another with wildlife corridors through grassland.



Before fencing was installed in the upper part of the swale above Borges Ranch, it was difficult to imagine how it would be practical to turn grassland into habitat.



2-years after brush piles were built, planted Coyote bush, willows and quail bush are growing. As new habitat began to grow, new residents began using an area where nothing previously existed.



The lower part of the swale with brush piles before planting Coyote bush and Quail bush. Originally plants were purchased from a native plant nursery. Wisecarver discovered this type of planting requires one gallon of water for each plant every ten to fourteen days during the summer.



As plants began to mature, Wisecarver discovered it was much easier to collect Coyote bush, Toyon and Coastal Sage seeds in the fall to be planted in the winter.



The photo on the left is what our wildlife corridor at Borges Ranch in Shell Ridge looks like today. This is an example of what can be accomplished by excluding cattle and planting a variety of native plants. This is how we create habitat for native wildlife with food, cover and water.



While the original idea of brush piles and planting was to help improve the quail population, Wisecarver had a very pleasant surprise.



Building brush piles are almost instant gratification as they are immediately filled with sparrows, quail and songbirds which find a great new place to feed and hide.



Brush rabbits, previously unnoticed around the ranch, began showing up in large numbers and breeding in the brush piles.



The resident Cooper's hawks found many new sources of food with the increase of sparrows and songbirds using new brush piles.



Retired U C herpetologist Robert Stebbins suggested Wisecarver provide accommodations for reptiles in brush piles. This was accomplished by including rock piles to create safe hiding places, sand to provide reptiles with a place to lay eggs.



The most recent version of a brush pile as Wisecarver decided to include a dust bath for birds along with the sand and rocks for reptiles. The dust is made from equal parts of dirt, ash and sand. We use downed Oak for brush piles because it is slower to decay than other types of wood, although other species of trees will work quite well.

Brush piles naturally break down; creating a new food chain as they decompose. To maintain older brush piles we just add more branches to the top of the pile.



An increase of small mammals in the brush piles attracts snakes and other predators to a new food source.



Brush piles increase insect populations and increases lizard populations in response to all of the new food available.



Resident Kestrels have an easier time raising young with an increased food supply from insects, small reptiles and small mammals who occupy the brush piles.



North Lime Ridge is a vast non native grassland, but the swale is a seasonal wetland. If you have water and a really good imagination you can create a wildlife corridor to allow small mammals and birds to move from one area of the open space to another.

Once the plants began to mature in the swale above Borges Ranch at Shell Ridge, the success of that project became apparent to even the casual observer. The Foundation Board decided it was time for a project in North Lime Ridge. Without much discussion, the Board voted to spend \$3,500 to erect a section of fencing to keep cattle from a portion of the seasonal wetland and a stock pond.

But not everything went as planned. The first section of fencing failed to keep cattle from entering the swale. The first spring, cattle went under the fence and tore up the area. The Oak Habitat group planted a number of Oaks in the grassland, while the cattle used the protective fencing around the planting as rubbing posts. Ground squirrels saw the Oak planting as a source of food and ate most of the acorns intended to become Oak trees.



Fencing immediately provided hunting perches for a variety of birds. The ungrazed plants inside the fence provide habitat for insects which attracts insect eating birds. From the photo it is difficult to believe a natural aquifer flows under the swale helping to create a seasonal wetland. It was amazing how the seasonal wetland came to life once cattle were excluded.



A Loggerhead Shrike makes use of the fencing as new hunting perches.



Willows planted in the winter began to grow.



A pair of Western King Birds (normally associated with an Oak grassland environment) took up residences along the newly fenced area because of new food sources that developed as a result of fencing providing perches to hunt from.



Fencing out the cattle allowed the cattails to thrive. Redwing Black Birds immediately moved into the cattails and began nesting.



A Western Rattlesnake awaits the departure of a Ground Squirrel from a den. We now have to pay more attention to where we step as habitat improvement attracts a variety of new native residents.



A pack of Cub Scouts are taught how to plant Buckeyes in a newly fenced area of the seasonal wetland. Since habitat improvement projects like this are so simple, we too often forget to invite others join in with us.



Stock ponds hold water long enough for the Mallards and other birds to nest, feed and fledge their young. This section of fencing was made possible by a grant from the Contra Costa County Fish and Wildlife Committee, from the Fish and Wildlife Propagation Fund.



A visit in the fall from a pair of Sora Rails seen feeding among cattails in stock ponds.



A Civic Pride Grant from the Walnut Creek City Council in 2007 paid for our last section of fencing to complete the seasonal wetland fencing in North Lime Ridge.

We continue to create additional project locations in our open space. The success of one new creature that we provide for triggers greater success for still others in the web of life.



The new fencing preserves large areas around stock ponds fed by a natural aquifer, providing breeding habitat for various species of amphibians in the spring.



The lower part of the newly fenced swale already has a very productive Monarch Butterfly habitat with large stands of Milkweed.



A caterpillar is about to go into metamorphosis while a chrysalis waits to emerge as a Monarch butterfly.



Resident Coyotes have a den up on the hill, they are seen hunting small mammals in the tall grass inside the fence. The taller grass favors small mammals like gophers, voles and field mice to easily hide. The grazed area favors Ground Squirrels who can easily see predators as they approach.



A Tarantula Hawk feeds on pollen from the Milkweed.



With better places to hide, the Jack Rabbit population is increasing as cover plants grow.



Red tail hawks nesting in an Oak tree overlooking the seasonal wetland find smaller mammals to hunt.



In the 1990's, Coyotes in the open space discovered a very easy source of food, feral cat colonies. After depleting the feral cat colonies in and around the open space, the Coyotes moved through neighborhoods along the edge of the open space feeding on outdoor cats.



Quail have now moved into backyards next to the open space in large numbers, thanks to Coyotes reducing the number of outdoor cats.



Feral cat colonies in the open space were passing along feline diseases to Bobcats, decimating the Bobcat population. Today, the Bobcat population is making a come back, thanks to the Coyotes feeding on outdoor cats.



Western Rattlesnakes feed on Ground Squirrels and other rodents. It is very important to leave natural predators alone as they help keep rodent populations at reasonable numbers.



While many people view Ground Squirrels as annoying pests, Ground Squirrels provide a source of food for many species of wildlife. The holes they dig provide housing for Burrowing Owls, Tiger Salamanders, Snakes and many other creatures that cannot dig their own dens.



Pollinators are responsible for every third bite of food you take.

A Pipe Vine Swallow Tail and native bee feed on nectar provided by an invasive non native thistle. We work very hard on removal of weeds in our open space but do not think about replacing food for our native pollinating insects by planting native flowering plants that flower different times of the year to feed them nectar. More native flowering plants will increase numbers of our pollinators.



Invasive non native black mustard is considered a plague with the acres of open space consumed with thick black mustard stands where other plants cannot grow.

When you want to remove non native flowering plants, you need to consider what native flowering plants you are going to plant in place of what was removed to feed our native pollinators.

Anytime you can solve a wildlife problem by just providing housing, it's a very simple fix.



In Shell Ridge, Western Bluebirds were being forced out of the natural cavities in trees they use for nesting by an invasion of non-native European Starlings, the Bluebird population was declining dramatically. The California Western Bluebird Recovery Program installed and monitored Bluebird boxes. As a result Western Bluebird population in Shell Ridge open space has exploded.



Existing fence posts in oak grasslands are good locations for Bluebird boxes. This box has a predator guard on the entrance to protect the nest and occupants from predation. Predator guards to prevent them from reaching into the box in search of a meal.



Nancy Hanna discovers that a Raccoon removed the contents of an Ash -Throated Fly Catcher nest while monitoring boxes.



A Violet Green Swallow emerges from a Western Bluebird box in Shell Ridge. Other species of cavity nesting birds are welcome to use the boxes and included in data gathered by the program.



Western Bluebirds are enjoying a big comeback with the help of nesting boxes.



Ash Throated Fly Catchers will occasionally use Bluebird boxes.

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Photos: Courtesy of Walnut Creek Open Space Foundation.

Gary Muerle at 925-932-1269 can answer questions about our wildlife habitat improvement project.