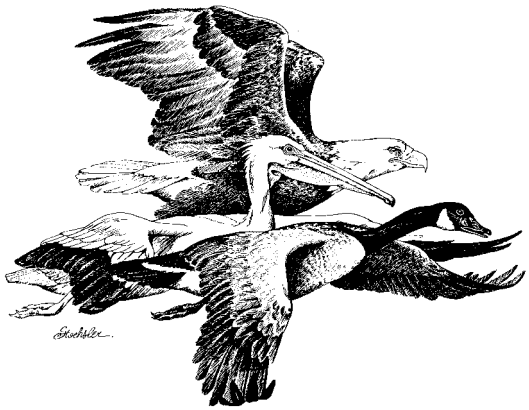
Words from the Wetlands



News from The Klamath Basin NWR's Summer/Fall 2003

Refuge Water Update

Fran Maiss
Deputy Manager

Unfortunately, as many of you know, Lower Klamath NWR, which contains 25,000 acres of wetlands that provide vital habitat to waterfowl throughout the entire Pacific Flyway, as well as nesting habitat for many different species of water birds, is once again short of water due to a dry water year.

During the fall of 2002, the Lower Klamath Refuge received about half of the necessary water deliveries to flood seasonal wetlands for the fall waterfowl migration. Thus, at the peak of the migration, around November 1, 2002, only about 4,000 acres of the 10,000 acres of seasonal marsh on this Refuge were available for use by migrating waterfowl. The Refuge's wetlands remained only half full through the winter, until an unusually wet April - May filled them all. The full recharge of the Refuge's wetlands resulted in a full compliment of breeding birds nesting on the Refuge this spring; white faced ibis, great egrets, great blue herons, grebes, coots and waterfowl. In fact, thanks to the U.S. Bureau of Reclamation, which covered the special pumping costs, the Refuge's more recently acquired Orem wetland units were also fully flooded. These units, which hold water well into August, are really a prolific producer of both shorebirds and waterfowl.

This good news was short lived, however, as even with the wet spring, the year is overall one of drought, with minimal inflows into Upper Klamath Lake, which is the water body that services the Lower Klamath Refuge through the Klamath Project. When it became apparent that inflows to Upper Klamath Lake were far below earlier predictions, the Refuge was directed in June to curtail water deliveries through the Ady Canal, the primary source of water needed to maintain 10,000 acres of permanent wetlands during the summer. It is anticipated that water deliveries through the Ady Canal from the Klamath River will not be available to the Refuge until fall, when supplies are once again surplus to other Klamath Project users. The Refuge's second source of water, the "D" Pumping Plant from Tule Lake has also been unavailable in June and July due to the dry weather. Thus, the Refuge has been managing its water supplies "in-house", sacrificing water within certain wetlands to keep the most productive bird nesting wetlands alive. It is felt that the water birds currently nesting on the Refuge will have adequate wetland habitat to fledge their young in August. Word came to us on July 31, that the "D" pumping plant would be started up with two pumps running for approximately three weeks. This was indeed welcome news as this amount of pumping should allow us to recharge some of the wetlands that we had sacrificed earlier to keep others whole.
(Continued on Page 7)

This Issue:

Wildlife and water: Estimating the needs on Tule Lake and Lower Klamath National Wildlife Refuges

Dave Mauser
Wildlife Biologist

Water competition issues in the Klamath Basin are now entering a second decade of debate. This debate and recent years of water shortages have made it increasingly obvious that insufficient water exists to meet the needs of all users. Lower Klamath River Tribes, coastal communities and commercial fisherman seek increased flows to improve salmon runs on the Klamath River. Tribes in the Upper Basin desire more water in Upper Klamath Lake to increase the number and health of sucker populations, a traditional subsistence fishery. Farmers need water to irrigate crops worth millions of dollars and Klamath River water via the Klamath Reclamation Project is also needed to support the remaining wetlands within the historic Tule Lake and Lower Klamath lakebeds.

As the parties debate the issues and seek common ground toward settlement of water issues in the Klamath Basin, the U.S. Fish and Wildlife Service (Service) is asked with increasing frequency, how many birds and wetland acres do you need and how much water is required? In this time of contentious water issues, it is critical that the Refuge be able to articulate habitat requirements and water needs to meet the needs of wildlife. Because of their location within the Klamath Project and their biological significance in the West, Tule Lake and Lower Klamath National Wildlife Refuges (NWR) are the focal point of this question. Although the question may seem simple, the variety of resident and migratory wildlife each with its own habitat needs makes an answer potentially complex. To develop an approach to answer this question, the Service assembled a "team" of wetlands and waterbird experts from Oregon State University, Ducks Unlimited, California Waterfowl Association, the States of California and Oregon, Point Reyes and Klamath Bird Observatories, the Service's Office of Migratory Bird Management, the Natural Resource Conservation Service, and the U.S. Geological Survey. The team met in Klamath Falls in September of 2002 and spent most of 2 days developing the following step-by-step approach:

1. Determine Refuge purposes--Each Refuge Unit in the System is generally established through specific legislation and/or Executive Orders. Language within these documents determines the primary purpose the Refuge. As with most Refuges, the purposes for Tule Lake and Lower Klamath NWRs is primarily waterfowl management and habitat for native wildlife, principally birds. Habitat and water management programs must be consistent with these mandates.

2. Determine waterbird population objectives-- Prior to determining how many acres of habitat are needed, the Service must first develop target numbers of wildlife. These population objectives will be based on a combination of recent bird numbers, goals within the North American Waterfowl Management Plan, Pacific Flyway Plans for key waterfowl species, National Shorebird Plan, and other regional waterbird plans that are currently in development.

3. Determine habitat needs to support target bird populations–Once waterbird population objectives are set, then the number of acres of different habitats to support the population targets must be developed. This is both the most important task as well as the most difficult. To simplify the process, birds will be grouped together into similar guilds. For example, ibis, heron, and egrets would be combined into a wader/colonial nesting marsh bird guild, dunlin, dowitchers, and yellowlegs would be combined into a shorebird guild, and canvasback and scaup would be in a diving duck guild. A focal species approach will also be taken. For example threatened or endangered species would get special consideration as would those species that are declining or of regional importance.

For waterfowl, a model developed by Ducks Unlimited will be used to develop needed habitat acres. The model is based on food resources. Thus, if the quantity of foods provided by each habitat type, the dietary needs of waterfowl, and the target number of birds is known, then the model will generate the required acres of habitat. Additional habitat acres needed for non-food related life history requirements will be added as needed. Similarly, habitat needs of non-waterfowl waterbirds will be added if they are not already included in the base habitat acres. This sequential approach will allow the Service to separately identify habitats required for waterfowl as well as the addition of other wildlife species. This is important because the Kuchel Act which guides refuge management speaks specifically to waterfowl management, but also dedicates these two Refuges more generally to wildlife conservation.

4. Determine water needed to support target habitats–Once target acres of each habitat type is estimated then the water needs and timing of those needs will be established. The Refuge is fortunate that Service hydrologists have spent the last 5-7 years estimating water needs of Refuge wetlands and agricultural habitats.

(Continued on Page 7)

News from Klamath Marsh NWR

Walt Ford
Refuge Manager

Refuge System Centennial Celebration
In honor of the National Wildlife Refuge System Centennial, Klamath Marsh NWR hosted a centennial celebration on June 28th. The event actually had it's kick off on Friday evening, June 27, when nine people participated in an "owl prowl" and an outing to hear the Yellow Rail. The group traveled west on Military Crossing Road and encountered a variety of species in the pine forest and in the marsh, just as the sun was setting. From there we headed to Silver Lake Highway, and while en route we heard a Western Screech Owl and glimpsed a suspected Great Gray Owl. We then stopped on Silver Lake Highway and were able to hear several Yellow Rails calling*. On the return to Refuge Headquarters a Barn Owl was spotted. It made for a pleasant and productive evening of bird watching.

The Saturday Centennial event started at 9 a.m.. Events included: a bird walk led by Charlotte Kisling, a member of the Klamath Falls Audubon Chapter; bird house construction, offered by Refuge Volunteers Jim Walthers and Monte Dehlinger; an open house of the nearly completed, newly constructed, refuge office; view assorted photo exhibits; view a wildlife video of local wildlife, taken by Richard Frenzel; observe a demonstration of various Tribal cultural techniques, given by Ivan Jackson; a live raptor display by Therese Cartwright; a barbeque lunch followed by cake and ice cream; and the final event was filling the time capsule with assorted memorabilia, preceded with a few remarks from Walt Ford, Refuge Manger, and Allen Foreman, Klamath Tribes Chairman.

The time capsule was placed in a special rock and mortar "tomb" that was constructed beneath an old windmill. The windmill, approximately 20 feet tall, was relocated from the north end of the refuge where it was used to pump water for cattle when this place was still a working ranch. In addition, a bronze plaque was placed on the "tomb" to remind refuge staff 100 years from now on where to find the time capsule.

An estimated 100 people attended / participated in this Centennial Celebration, which also coincided with the Refuge's 45th birthday. This was the first open house that Klamath Marsh NWR has ever hosted and it was a definite success! Thanks to the refuge staff from Tulelake NWR that aided in the planning and coordination. And a special thanks to the members of the Chiloquin Garden Club that helped to beautify the place. They assisted with the landscaping and planted all the flowers and shrubs, many of which they donated!

*Did you know Klamath Marsh is home to the largest known breeding population of Yellow Rails in the entire western United States? The rails are extremely secretive and are also nocturnal, catching a glimpse of one is essentially impossible. However, they are easily identified by the male's persistent call, which only begins after the sun has set and twilight has been replaced with total darkness.

Millions of Tiny Flying Cows

Walt Ford
Refuge Manager

Klamath Marsh NWR is providing a unique opportunity this summer for people to see massive swarms of Clearwinged grasshoppers (*Camnula pellucida*). The grasshoppers, native to Klamath Marsh, have been compared to cows due to their ability to strip a field of grass bare in a matter of a couple of weeks. When the grasshoppers reach their adult stage of development they can also fly. They then become a swarm that can move miles in search of grass to eat, and they are voracious eaters. They have been known to devastate grasslands in areas as large as 2,000 square miles! Their population is very cyclic, usually much worse during a continued dry spell like we have currently. Their numbers have been climbing the last couple of years and have the potential to multiply many more times before nature would ultimately cause the population to crash, due to inhospitable weather or some form of microscopic parasite taking it's toll.

There are records of the hoppers from Klamath Marsh reaching such huge swarms that they migrated as far as Upper Klamath Lake while looking for suitable places to feed. Old time ranchers from the area tell of the hoppers being bad in the 30's and 40's. They made arrangements with turkey producers to move their flocks onto the Marsh to help control the grasshoppers. They had several flocks, estimated at more than a thousand birds each. Each flock had a shepherd that moved the flock into portable pens at night to keep them safe from coyotes. However, turkeys have never been accused of being overly intelligent, "You'd see a turkey run over a million grasshoppers when it was trying to catch a certain one!" The ranchers also built fences out of metal sheeting to funnel hoppers, that were on the move but still couldn't fly, into pits the ranchers had dug. Hogs were then turned into the pits to eat the grasshoppers. They also talk about the dirt roads having ruts nearly a foot deep and "being plumb full of grasshoppers." Apparently it made quite an impressive sound when driving over so many grasshoppers.

While there are several species of grasshoppers native to the area, only the Clearwinged is prone to becoming a problem on the Klamath Marsh. The adult female begins to lay eggs around the end of July, in localized areas that have suitable soils, with thousands of other females. The female uses an ovipositor to place the eggs in the top inch of soil. Egg laying areas greater than 20 contiguous acres in size have been recorded with as many as 3,000 - 100,000 eggs per square foot (not recorded on the Klamath Marsh). Each female typically lays from 10 - 38 eggs per clutch, and will lay a new clutch of eggs every few days, up to 200 eggs total during her lifetime.

(Continued on Page 4)

Klamath Basin Refuges' Prescribed Fire Crew

John Wood
Prescribed Fire Crew Leader

From early in the history of the U.S. Fish and Wildlife Service, prescribed fire has been used effectively as a tool to improve wildlife habitat. From this early beginning, the need to continue using fire as a tool to manipulate habitats has been evident. With this in mind, Region 1 fire staff and fire management officers collaborated to build on an idea borrowed from the National Park Service and put into operation a Service version of prescribed fire crews. Two prescribed fire crews were established in Region 1, one at Turnbull NWR and the other at Klamath Basin NWR Complex. The Klamath Basin Crew was put into operation on July 16, 2001.

Currently, John Wood, assisted by John Donahue, supervises the Crew. Wood's leadership ability and boundless energy, coupled with a variety of experience, makes him an excellent supervisor. Donahue's diverse experience and extensive knowledge have been great assets to the Crew. Yancee Shepherd, a third year member of the Crew, continues to be an outstanding crewmember, demonstrating leadership and employing his knowledge of fire operations. Brent Davis lends a hardworking and straightforward attitude and experience from Sheldon-Hart Complex. Camden Bumpus brings endless enthusiasm and willingness to work. Recent addition, Scott Swanson, will bring his own unique talents to fill out the Prescribed Fire Crew.

Since its inception, the Crew has enjoyed excellent working relationships throughout the Region and the Service, benefiting greatly from a diversity of experiences and exposure to many of the fire programs. The primary function of the Crew is to assist with prescribed fire. Approximately 30,000 acres of prescribed burns are completed per year at Klamath Basin NWRs, and the Crew assists in implementing a number of other prescribed burns at other units in the Region. They also undertake hazard fuels reduction projects. Recently, the Crew lent their assistance on a 100-acre juniper thinning project near Little Sheldon at the Sheldon-Hart NWR Complex. Hazard fuels work in progress by the Crew, while at home, includes thinning around bald eagle roosts and nest trees at Bear Valley NWR. Other projects completed in Bear Valley include a fuel break project designed to reduce the potential of a damaging crown fire, preparing units for prescribed burning and completion of a meadow restoration project, where encroaching juniper trees were thinned, piled and burned.

Whether on hazard fuels projects or helping with prescribed fire, the Crew stays busy at home or at other Refuges. Last year, the Crew helped the Service achieve an impressive number of prescribed fire acres, lending its assistance on more than 23,000 acres. There are, however, some drawbacks to being on the Prescribed Fire Crew. Frequently, the Crew is required to travel, and at the end of a productive year the time spent traveling can add up to months away from home and the day-to-day activities and interactions of a "regular job". But, the prospect of adventure and the interesting nature of fire work, as well as the opportunity to gain valuable experience, greatly enhances the appeal of the Prescribed Fire Crew and keeps crewmembers coming back for more.

Helicopter Igniting a Prescribed Fire on Tule Lake NWR

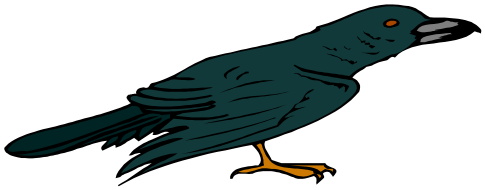
Millions of Tiny Flying Cows

(Continued from Page 3)

As one can imagine, their very nature makes them extremely problematic for area ranchers. Nature may not intervene for years to come. The grasshoppers could ultimately bankrupt every area rancher by leaving no grass for their livestock for several years. For this reason, Refuge personnel, assisted by other Fish and Wildlife Service personnel, will carefully explore options to implement a grasshopper control program next year. Insecticides will only be chosen that have minimal side effects to non-target organisms. If the Refuge chooses not to initiate a control program, the ranchers could decide to apply Malathion (as they have done before) to protect their grassland from winged adults migrating from the Refuge onto their lands. Malathion is the insecticide of choice for control of adult grasshoppers, it is toxic to essentially all insects and therefore much worse for the environment as a whole. Control options will be investigated more fully these next six to eight months so we can complete our NEPA documents. To do nothing and turn a blind eye to the harm Malathion poses to the environment is an option, but not a good option in my opinion.

In the mean time you are invited to enjoy this phenomenon. The grasshoppers can be easily viewed on Silver Lake Highway, approximately 15 miles east of Highway 97. This picture was taken on July 18 at 1 p.m.. They are best viewed during the 11 a.m. to 2 p.m. time frame, they like the heat of the day best. Feel free to call me at 541-783-3380 if you have any questions.

Clearwinged Grasshoppers at Abraham Flat and Silver Lake Highway



Species Spotlight

Common Raven

Corvus corax

Jerry King
Park Ranger

The specific name for the largest member of the crow family, *corax*, comes from a Greek word meaning "croaker" and aptly describes the raven's hoarse voice. It has a hoarse, low-pitched call, C-r-ock and sometimes a metallic *tok*. Although they look similar, the raven is much larger than the crow. It is the largest passerine, or perching bird. The raven is 22 to 27 inches high with a wingspread of four feet. The crow is 17 to 21 inches high and has a wingspread of 33 to 40 inches. An easy way to distinguish between the two, other than their size, is by the throat and neck. The raven has shaggy-looking, pointed throat feathers, sometimes likened to a "goiter", while the crow's neck feathers are sleek and smooth. The raven has a heavier bill (a powerful three-inch beak) than does the crow and a longer, wedge-shaped tail. Its distinctive facial bristles are a special kind of feather and may function like the whiskers of a cat to amplify sensations of touch.

This is a bird of the wilderness; of high mountains, northern forests, treeless grassland, and rocky seacoasts. In the Klamath Basin they can be observed in the forests and along Highway 97, north of Klamath Falls. They are also seen flying near the cliffs, by the visitor center, and at the Petroglyphs. An impressive flier, the raven is the aerial equal of hawks and falcons. Hawk-like in flight, the raven alternates flapping and sailing and gliding on flat wings. Ravens are raptor-like masters of the air and often soar.

They are typically in flocks except in nesting season. They gather in large nightly roosts during the winter, occupying communal roosts in trees, in numbers up to several hundred. They occasionally hunt cooperatively in a group; one bird distracting a predator from carrion while the others tear off large chunks. Like wolves, ravens cache extra food, digging holes with their stout beaks, dropping in a morsel, then covering over the spot to hide it.

Ravens have been observed flying directly along highways, with their head down, watching for road-kill. It's diet is completely opportunistic: it will eat anything available, from grain and fruit to snakes, snails, frogs, insects, earthworms, and eggs or nestlings from the nests of other birds. Their primary food is carrion.

Ravens, like eagles, mate for life. They don't start breeding until at least their second year. When spring arrives, the mutual preening and bill touching that raven couples perform year-round grows more intense. Courtship displays on the wing are common. Ravens display in more different forms than perhaps any other birds. Hurtling earthwards, with wings folded, then unfolding their wings and letting the speed carry them back upwards. Performing half rolls, barrel rolls, corkscrew dives, and backward loops, even flying upside down. Male and female often fly together, wing tips touching, male above female, soaring in unison.

Usually, they produce one brood a year unless the first brood is lost then a smaller clutch is sometimes produced in the same nest. The nest is a large cup-shaped structure located mostly on cliff ledges or coniferous trees. The nest is built over several weeks. Both male and female bring in twigs and pass them to each other, working together to construct a nest. It is lined with grass, shredded bark and tufts of animal fur. Building materials that fall or drop are not retrieved and often there is a pile of sticks beneath the tree or cliff where the nest is located. The pair frequently return to the same nest each year, making repairs, as needed.
The female incubates 3-7 eggs for three weeks, while the male feeds her. The chicks can fly in six to seven weeks but remain with their parents for several months. Parents feed chicks with carcass meat, insects, rodents, worms, and eggs of other birds. Young ravens succumb to accidents and predators, such as owls and raccoons. But their main enemy during this period is starvation. The amount of food their parents have been able to cache in easier times may make the difference between life and death.

Ravens are part of the widespread and successful corvid family, which includes magpies, jays, rooks, and crows. Inquisitive and quick to learn, corvids have some of the most highly developed brains known among birds, and the raven's is the largest in the family.

In Yellowstone National Park, ravens have learned to open Velcro, untie knots and unzip zippers to get at food. Some people say this is evidence of them learning and acting intelligently to solve problems. It is yet to be determined how often intelligence replaces instinct. Opinions differ as to whether the raven's learned behavior is intelligence or due to its remarkable skills of adaptation.

They are capable of imitating other birds and even mimic complex sounds like bells and whistles. In captivity, they have learned to articulate words. Raven vocalization is exceeded only by human speech.

The midnight colored raven bodes misfortune in some legends. A Norse myth has two ravens, named "Thought" and "Memory", flying through Odin's realm each day, returning to perch on his shoulders and whisper the news in his ears. To the Tlingit, Haida, and Tsimshian (Northwest Pacific coast Indians), the raven is an essential part of their religion. They believe the raven made the earth, the heavens and all living things. They relate to his power through story, song, and dance.

Undoubtedly, the best known raven is in Edgar Allen Poe's poem "The Raven". The ominous bird was immortalized as uttering the single word "Nevermore".

Recent Road Designations Highlight Klamath Basin and Refuges

Dave Menke
Outdoor Recreation Planner

In the past six months, two separate efforts have elevated the status of tourism and wildlife viewing in the Klamath Basin. Both efforts are closely tied to the wildlife and resources of the Klamath Basin Refuges and other locations in the Basin and adjacent areas of northern California. This spring, the California portion of the Volcanic Legacy Scenic Byway was designated by the Federal Highway Administration as an All American Road. This designation not only will highlight the route on road maps, but will make funds available for improved signing, interpretation and tourism facilities along the 500 mile long route. In combination with the previously designated Oregon portion of the byway, the All American Road route links Crater Lake and Lassen National Parks with many points of interest in between. The twin themes of the route are geology (volcanism) and wildlife.

Refuges highlighted along the route are Upper Klamath, Bear Valley, Lower Klamath and Tule Lake National Wildlife Refuges. Eventually, interpretive kiosks and panels will be developed at key locations along the All American Road to highlight scenic, wildlife and volcanic features. A new visitor center highlighting resources and features found along the All American Road is also planned at the city of Mt. Shasta.. Maps and information about the new route are available at the web site "VolcanicLegacyByway.org".

Refuges and other locations in the Klamath Basin have also been recognized in a grassroots effort to promote the newly designated Klamath Basin Birding Trail. This trail identifies 300 miles of roads in the Klamath Basin providing the opportunity for residents and visitors to enjoy the well-known birding opportunities in the Basin. The trail is linked to the Oregon Cascades Birding Trail which extends the entire length of the Oregon Cascades. Both the Cascades and Klamath Basin Birding Trails are described in an attractive new brochure describing over 200 birding sites along the two trails. A copy of the brochure may be obtained by calling 530-667-2231.

Information and maps on the Klamath Basin Birding Trail are available at the web site, "klamathbirdingtrails.org".

Celebrating One Hundred Years of Conservation

David Champine
Park Ranger/ Interpretive Specialist

One hundred years ago, one of the greatest ideas in conservation began. President Theodore Roosevelt set aside tiny Pelican Island in Florida as the Nation's First Wildlife Refuge in 1903. From this one act the National Wildlife Refuge System has grown to over 535 Wildlife Refuges. Each being permanently preserved to protect, and manage habitat for America's wildlife. Places, where over 40 million people visit each year to enjoy some of Americas most amazing wildlife and breathtaking scenery. An idea in wildlife conservation that has become a model for the world to follow.

In 2003 the National Wildlife Refuge System is celebrating its achievements over the past 100 years, while looking towards the next 100 years in wildlife conservation. Klamath Basin National Wildlife Refuges has also been celebrating. Throughout the year, Klamath Basin Refuges hosted special events to highlight our different refuges and activities. In January, there was a winter bird life tour. In February, the Refuges participated in the annual Bald Eagle Conference with special Refuge Centennial exhibits. In March there was the Time Capsule interment and open house with Bar-B-Que. In the Time Capsule many objects were interred of both historical and sentimental value. Future Refuge personnel will open the Time Capsule in 2103. In April we conducted a Wildlife Appreciation and Photography tour. In May, the Refuge participated in the Annual Tulelake Migratory Bird Festival, a daylong event celebrating the diverse wildlife in the Klamath Basin Area. The highlight was a guest appearance of President Theodore Roosevelt by actor Keith McGough. Mr. McGough enthralled the audience by appearing in period attire and adopting the speaking style of the 26th President. Klamath Marsh National Wildlife Refuge celebrated the centennial in June. The day was full of many activities including Wildlife Tours, Time Capsule Interment, open house with Bar-B- Que, Birdhouse construction for children, live raptor demonstration and Tribal Cultural demonstrations. A guided canoe tour of Upper Klamath Refuge took place in July.

Future events will include: Clear Lake Refuge Tour in September. In October, "Celebration of Youth Waterfowl Hunting Day". Farming and Wildlife on the Refuges Tour in November. Finishing the year with "The Joys of Winter Birding" tour on Tule Lake National Wildlife Refuge in December. For more information about these events, please contact us @ (530) 667-2231.

As 2003 and the centennial year come to a close, we can reflect on all of the natural resources we have in America, and all that Americans have done to conserve them.

Refuge Water Update

(Continued from Page 1)

Thus it is anticipated that by the start of hunting season in early October some of the refuge's wetlands should have water. It is also hoped that the infrastructure on our new well at White Lake will be installed during September, so some wetland habitat may be flooded in that unit during the fall. We are reluctant to use our groundwater well adjacent to unit 9c during the summer, as it is too hot, and even if mixed with flows coming from "D" Plant it would be contributing warm water during a period when we are very concerned with botulism outbreaks. It will be used during the fall seasonal wetland flooding period, when the threat of botulism has subsided. With Lower Klamath Refuge having the lowest water priority amongst all of the Project water users, it is becoming apparent that interruptions to water delivery during the summer and fall months are no longer to be considered unusual.

On a brighter note, the Tule Lake Refuge, which now has approximately 4,500 acres of seasonal marsh has a reasonable expectation of having them flooded for the fall waterfowl migration. This is because they are more closely aligned to the return flows of the Tulelake Irrigation District and donated private groundwater supplies. Also this year, lease lots 15 through 20 are on a one year flood cycle to control nematodes, a soil borne pest that affects barley and potatoes. This flooded agricultural land also provides a different type of wetland habitat for shorebirds and waterfowl. It is hoped that the increased availability of seasonal wetland habitats on the Tule Lake Refuge can somewhat offset the shortages being experienced on the Lower Klamath Refuge during the drier years.

Wildlife and water: Estimating the needs on Tule Lake and Lower Klamath National

(Continued from Page 2)

5. Identify "real-world" constraints to achieving habitat targets–It is important that the Service lead this effort with a "biology first" approach. However, at some point the realities of operating within the Klamath Reclamation Project and being junior to other Project water users will dictate that we consider alternative methods of achieving habitat objectives. For example, the Refuge may not be able to rely upon Project water deliveries to maintain permanent wetlands. An alternative approach may be to use winter water to flood areas deep enough such that water remains most of the summer without augmentation.

6. Develop alternatives to achieve the proper mix of habitats–Once habitat objectives are developed and constraints identified, the team of wetland and waterbird experts will be reconvened to solicit their comments and to develop alternatives.

7. Gather public input–Once draft alternatives are developed, the Refuge will solicit public input. This input will be used to modify alternatives or develop new alternatives if warranted. Ultimately, this effort will be instrumental in updating habitat and water management plans for both Refuges.

Development of the strategy was useful for two reasons. First, it laid out a logical progression for developing population and habitat objectives. Secondly, it helped Refuge biologists identify needed information. To that end, Refuge biologists quickly recognized that good estimates of food resources on Tule Lake and Lower Klamath NWRs for the Ducks Unlimited model were lacking. To gather this information, the Refuge contracted with Ducks Unlimited and Oregon State University to collect seed samples from seasonal wetlands and aquatic vegetation samples from permanent wetlands in fall, and aquatic invertebrates from wetlands in spring. In addition, because agricultural foods are seasonally important to waterfowl and cranes, the Service contracted with the U.S. Geological Survey to summarize agricultural food availability data collected from the Klamath Basin in the late 1980's.

In addition to a lack of food resource information from Refuge habitats, the Service also lacked good comprehensive surveys of non-waterfowl species from both the Refuges and the larger Klamath Basin. To gather as much of this information as possible, the Service contracted with the Point Reyes (PRBO) and Klamath Bird Observatories (KBO). Biologists from these organizations are currently conducting Basin-wide surveys of non-waterfowl waterbirds as well as marsh passerine birds. These surveys will be used to estimate the numbers of waterbirds using Tule Lake and Lower Klamath NWRs and relate these numbers to Basin-wide numbers as well as larger regional scales. In addition, based on the surveys, PRBO and KBO will make habitat and management recommendations so that wetlands on the Refuges support the widest range of endemic bird species as possible.

The Refuge has always attempted to restore or enhance as many acres of wetland habitats as possible. Unfortunately, an expanding human population in California and the West continues to stress remaining water supplies. Increasingly water use must be clearly justified and efficiently managed. This is the challenge facing Refuge Mangers and Biologists in the coming decades. Our hope is that the above described process will result in a scientifically justified habitat base that serves the greatest number of endemic species while making the most efficient use of available water supplies.

NO WATER NOT ALWAYS A BAD THING FOR REFUGE MAINTENANCE

Carl Millegan
Supervisory Refuge Operations Specialist

Like the summer of 2001, this year is proving to be a dry one. The dry season means much reduced water will be flowing into Lower Klamath National Wildlife Refuge. This also means refuge canals and drains will begin to dry up in the months of July and August. Although, this is not a good thing for the wildlife, it provides the Klamath Basin NWR maintenance crew the opportunity to do required maintenance on our water delivery system.

Lower Klamath NWR is a collection of intensely managed wetlands with a large number of canals, drains and water control structures, with the ability to move water anywhere it is needed. From time to time this system needs maintenance in various places and the Refuge maintenance crew is there to take on the project. The maintenance crew has two irrigators that serve as the caretakers of this system. When something goes wrong they are on the spot to fix the problem. They also spend countless hours doing what they can to improve the system and make water movement on the refuge more efficient. They are in charge of recruiting other members from the maintenance crew to assist them in cleaning drains and canals and replacing water control structures. These projects can prove to be daunting tasks, especially when water is involved. In most cases where water is present, it must be dammed or pumped to another area while the crew does their work. It is difficult to set large heavy structures in soft mud, so solid foundations must be produced in these wet areas with dry gravel and dirt. Without dry solid foundations the structures can shift and not function as they were designed.

Each year several drains and canals must be cleaned to allow water to pass more freely. It can take up to two weeks per drain or canal depending upon the area, vegetation types and amounts of water present. Drain cleaning removes silt buildup and unwanted vegetation that slows water movement. The task becomes more difficult when water is standing in these areas. Cleaning is sloppy and depths are difficult to judge because the operator cannot see through the water in the canal. In some cases when water is present the silt and mud simply run back into the canal making the problem more difficult to deal with. In dry conditions this situation is remedied, spoil piles can be knocked down immediately and seed can be planted in the fall to combat noxious weed invasion.

Having these dry conditions allows the crew to get many of these tasks done with little trouble. Although, the refuge would prefer to have water in the dry summer months, this gives maintenance the opportunity to get some valuable work done better and more efficiently.

How do you eat an elephant?

Marco Buske
Integrated Pest Management Specialist

The Klamath Basin National Wildlife Refuge Complex is an enormous place with a big weed problem. Best guess estimate is 8000+ acres of wetlands, uplands, canals and drainage ditches and croplands are infested with a variety of exotic and noxious weeds. These include perennial pepperweed, poison hemlock, five-hook bassia, purple loosestrife, common reed, Canada thistle, Scotch thistle, yellow starthistle, dalmatian toadflax, diffuse knapweed, and Russian knapweed. The most troublesome of these is perennial pepperweed, although Canada thistle and poison hemlock are also widespread. Purple loosestrife is an emerging threat to the Refuge's wetlands, and yellow starthistle is threatening upland sites. Also, this summer the presence of dalmatian toadflax was confirmed at Bear Valley NWR.

Figuring out how to consume this elephant is a daunting task. Some progress has been made towards reducing undesirable infestations, however this weed invasion is on such a huge scale existing staff resources and funding is simply not adequate. Although with patience and persistence steady progress can be made towards realizing significantly fewer invasive and exotic weeds. In general three areas of management need to be developed further. The important first step is to locate and map infestations, particularly new infestations. This is critical to understanding the problem and focusing resources for optimum effect. So far of all the refuges in the Klamath Basin Complex only 10% of Lower Klamath NWR has been mapped. Second step is to eradicate weed species whose infestations are relatively new and small in size such as purple loosestrife and yellow starthistle. Third, contain and eventually reduce the scale of those weed species that are well established and whose presence is on a large scale such as perennial pepperweed and poison hemlock.

To help accomplish the first task, mapping weed infestations, the Refuge pest management program is seeking help from volunteers. Anybody with an interest in public service, a desire to develop a working knowledge of Global Positioning and Geographic Information Systems, or simply someone who enjoys spending a little time exploring natural areas is encouraged to contact Marco Buske, Refuge IPM Specialist. Marco can be reached by phone (530-667-2231) or email (marco_buske@fws.gov)

One bite at a time.

Refuge Hunting Season Forecast 2003

Dave Menke
Outdoor Recreation Planner

Once again, as in the past three seasons, water shortages will undoubtedly impact waterfowl hunting on Tule Lake and Lower Klamath National Wildlife Refuges. Water deliveries to Lower Klamath wetlands were cutoff on June 20, 2003 and may not resume at normal delivery rates until substantial precipitation occurs in the Klamath Basin. This normally happens in the late fall or early winter months. If water deliveries continue to be curtailed, many permanent and seasonal wetlands on Lower Klamath Refuge will be dry during the early portion of the waterfowl hunting season.

First weekend waterfowl hunting applications for the refuges have been sent out and should be sent back postmarked between August 1 and August 15th. This year, applicants for first weekend hunts on Lower Klamath Refuge will need to specify whether they want to hunt field units or marsh units the opening weekend. Like last year, those hunting parties applying for Tule Lake Marsh hunt may also indicate if they would also like to be in a drawing to hunt the Sump 1(B) hunting unit. Waterfowl hunting forecast for refuge units this coming year are summarized as follows:

Tule Lake spaced-blinds and field units – The spaced-blinds are anticipated to have normal crop conditions this year. The Cal-Ore Wetlands and Waterfowl Council has received a grant to have some standing grain left in some of the spaced-blind and field hunting areas. The "D" spaced-blind wetlands, field 6 and fields 15-17 in the League of Nations hunting area will also be flooded this year subject to availability of water. The refuge in cooperation with the Cal-Ore Wetlands and Waterfowl Council plans to install a third pit blind in the "D"blinds prior to the coming hunting season.

Tule Lake Marsh – The traditional hunting marsh on Tule Lake Refuge is anticipated to have normal water levels this fall as water levels in this unit are maintained to provide habitat to protect endangered sucker fish. The hunting areas in Sump 1 (B) and Frey's Island which were opened for the first time last season will once again be accessible to hunters participating in a morning drawing at the Tule Lake check station. Sump 1 (B) is operated as a seasonal marsh so hunting in the area will depend on the availability of return agricultural flows to flood the area this fall. Hunters should find improved cover in the Sump 1 (B) unit in the coming season. The three southern areas in the Frey's Island hunting area (units D, E and F) will have pit blinds installed this season. All six of the Frey's Island hunting areas will be part of the morning drawing at the Tule Lake check station.

Lower Klamath Marsh – As mentioned elsewhere in this newsletter, water deliveries to maintain permanent marshes on Lower Klamath have been cut off or reduced which has resulted in permanent marshes shrinking considerably. At best, reduced water deliveries are likely to Lower Klamath wetlands until late fall or winter precipitation occurs. With this occurring, many permanent and seasonal wetlands will remain dry through the fall with impacts to marsh hunting on Lower Klamath. Although the situation could change, the number of marsh hunting units on Lower Klamath will be limited this fall.

Lower Klamath Fields – Grain stubble field units open to waterfowl hunting will be similar to last year with units 11B, the fields east of the Sheepy East Road, and units 4 D and 4 E in grain stubble.

Lower Klamath Oregon Strait – The portion of Lower Klamath Refuge in Oregon will be open to hunting as in past years with most of the area in grain stubble or pasture. Subject to water availability, one or two areas in the Oregon Straits is anticipated to be flooded in the early fall. The three units flooded in the hunting area last season are being farmed this year.

Disabled User Hunting Opportunities – Four specially designated blinds will be available for disabled spaced blind users participating in the morning Tule Lake check station drawings. Three disabled user marsh hunting opportunities are also available on Lower Klamath Refuge, but; these are likely to be impacted by water shortages this year. To qualify to use one of the disabled blinds an applicant must possess a currently valid disabled user placard from his state of residence. Disabled users may contact the refuge at (530) 667-2231 to apply for use of these blinds or to obtain a flier and map showing locations of disabled hunting blinds.

Hunter Hotline – A summary of the information listed above is posted on the Refuge's hunter hotline (530-667-4868 extension 500) the message will be updated weekly (usually Tuesday or Wednesday) throughout the hunting season. Helpful hunting information is on the Refuge web site "http://klamathbasinrefuges.fws.gov"

Volunteers Needed !!!

Contact us on how you can become part of the team.

We especially, need volunteers to help with our Visitor Center operations .
So, if you would like to become part of a great team of Volunteers and Employees, meet new and interesting people and have an all around good time.

Then Don't Wait !!!!

Contact: Park Rangers David Champine or Jerry Ann King at (530) 667– 2231

Please, Keep in touch !!
If you would like to be added to the mailing list or have had a change of address, see the back cover for details.