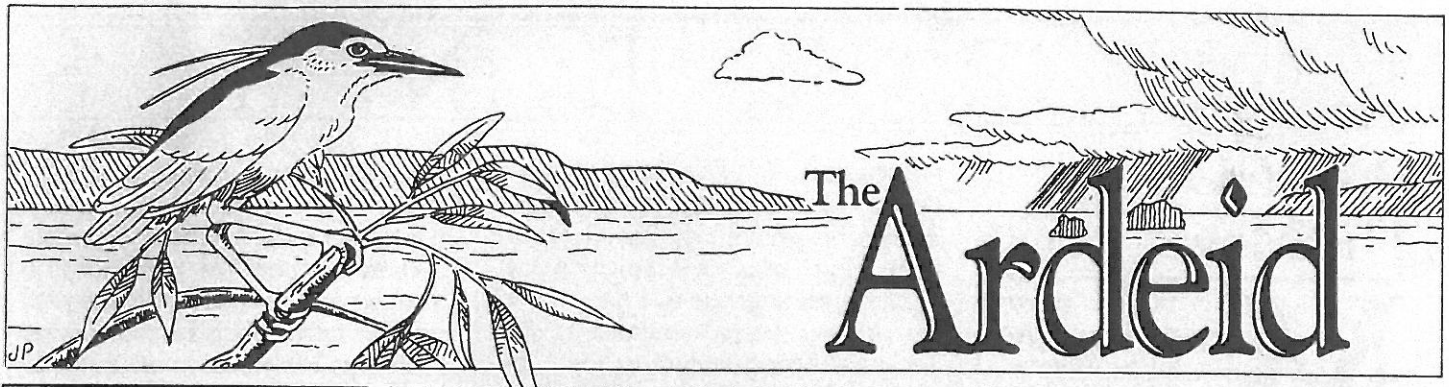


The Ardeid

Research & Resource Management at Cypress Grove Preserve — Audubon Canyon Ranch, Spring 1991

A Quarter Inch Of Rain

That's all it takes to start California's beautiful perennial bunchgrasses growing — a good inch for the ubiquitous annual European grasses that color most of our hillsides. After that first touch of rain last October, while walking through a patch of native blue wildrye and purple needlegrass, I noticed splashesof new green growth in nearly every tuft. By mid-December, we had received only a half inch of rain, but perennial bunchgrasses had been thriving since Indian summer cooled.

Before fences, thick stands of native oatgrass, brome, hairgrass, and fescue covered the open hills and terraces of the coastal fog belt. Intermixed were scattered patches of bracken fern, iris, coyote brush, bush lupine, rushes, and a spectrum of annual and perennial wildflowers. I often imagine the rich macrame of vegetation that was here — the vast and knotted coastal prairie.

With European settlement came a new flora, dominated by annual grasses from the Mediterranean, and eventually, South Africa, Chile, and Australia. Soft chess, redtop, wild oats, and other "California grasses" arrived in packing materials, hay, and ballast. These species were well-adapted to heavy grazing by cattle and sheep. They quickly expanded throughout the state.

Nowadays, pristine coastal prairie does not exist outside of a few isolated patches. However, much of the Marin coast is a mixed prairie, often dominated by annual grasses, but with a beautiful and diverse structure similar to the native prairie. At about this time each spring, long before the grasses stretch upward to meet the building northwest winds, harriers perform their nuptial "sky dance," climbing, rolling, and diving over the prairie. Kites hover over networks of rodent runways. In early April, grasses shoot upward in a slow explosion of flower. Grasshopper Sparrows buzz insect-like songs from the low tops of woody shrubs. Later, when the annuals have been spun to gold by the drying May winds, black-tailed deer day-sleep in secret beds and give birth to spotted fawns beneath the waves of grasses.

This year, the hills remained brown until mid-February. However, coastal fog and condensation on cool nights were enough to sustain the native grasses, and the delayed germination of annuals virtually eliminated competition for trace amounts of soil moisture. So it seems that bunchgrasses in some areas actually benefitted from the drought. Meanwhile, on dry pastureland, dramatic reductions in annual forage is a reminder of battles already lost long ago. Severe droughts in the 1840's and 1860's, with related increases in grazing pressure, may have delivered the final blow to much of our native coastal prairie.

One should keep in mind that all

continued on page 3

Coastal Prairie Restoration!

ACR field observers are restoring an area of coastal prairie at Cypress Grove Preserve. Each May-June, volunteers learn to identify native grasses and gather seeds from around the Tomales Bay shoreline. Early in the following rainy season, thousands of young seedlings are reintroduced into the prairie, having benefitted from enough TLC to ensure an early and sure start on the season.

The project is part of a scientific search for ecosystem effects of native grass restoration. To accomplish this task, field observers monitor the relative cover of all plant species each April-May. The study also tracks the population dynamics and habitat selection of California Voles (meadow mice). A population index is derived from counts of tiny above-ground trails that voles use for foraging on grasses. These "runways" are generally concealed by overhanging grasses, thus providing protection from predators. Field observers identify active runways by scat, urine crystals, recently chewed-off grasses, and "hay stacks" of grass stems left in piles along the runways. The index effectively tracks population changes because vole traffic along the runways remains constant; consequently, the extent of their "freeway" system is directly related to population size. The presence or absence of active runways within numerous vegetation sample plots provides estimates of habitat preferences.

So far, we have found that voles are more abundant in areas dominated by annual oats (Avena barbata); they avoid areas with greater diversity of plant species, possibly because the lower vegetation in such areas provides less protection from predators. The reintroduction of native bunch grasses could change this situation: voles might benefit from perennial cover in areas that support a diversity of other plant species (among the bunches). Changes in population peaks or in patterns of vole population cycles would suggest overall effects on grassland food webs. However, it will take several years to find out.

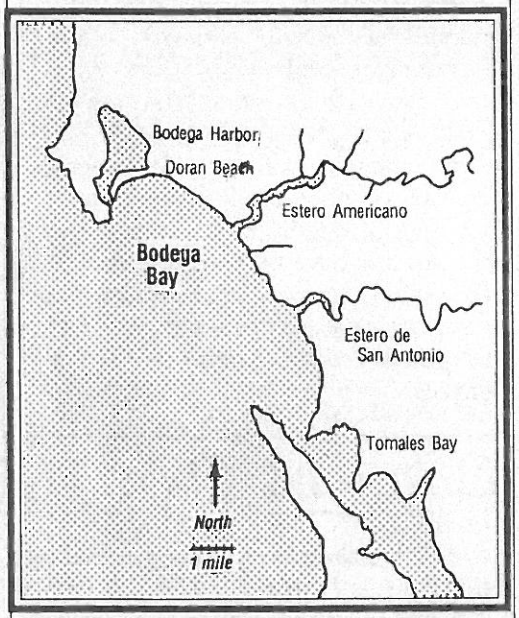
Dunlin On The Move

Many birders know that the large Dunlin flocks invade our coast in Otober, long after the other species have arrived. The Dunlin migration is delayed because they molt on or near their northern breeding grounds, rather than in migration. Once here, their highly mobile flocks mix and remix, and move with shimmering synchrony between tide flats and roosting sites. Or do they? In a recent study, Greg Ruiz and co-workers at the U.C. Davis Bodega Marine Lab (BML) suggest that the positions of Dunlin in roosts may be determined by age and sex, that Dunlin within a common wintering area may exhibit dramatically different daily activity patterns, and that such differences may reflect differences in physiology among subpopulations (Ruiz, Connors, Griffin, and Pitelka. The Condor 91:562-570). Things are not always as they first appear.

The researchers used mist nets to capture and band Dunlin at a night roost on the southeast shore of Bodega Harbor, near Doran Beach. Comparing the results from three locations along the night roost, they found that larger individuals, i.e. females (Dunlin are sexually dimorphic for size), and juveniles were more abundant near the center of the roost than near the edges.

The Bodega Harbor study also found late-winter changes in the activity patterns of Dunlin. In early winter, Dunlin coalesced each day at dusk into flocks of up to 500 birds, which flew back and forth along the salt marsh, then dispersed into smaller groups to roost in the marsh vegetation. In late winter, this pattern changed. Flocks gathered at dusk then flew southeast out of the harbor. Peter Connors and John Maron of BML have since described movements of Dunlin between Bodega Harbor and the Estero Americano, where tide lags of up to three hours provide supplementary feeding areas after the tide flats in the harbor have been inundated (1989 Technical Memorandum to the City of Santa Rosa).

However, Ruiz et al. found a late-winter movement out of the harbor every day at dusk, regardless of the tides. A comparison of night-roosting birds with daytime feeders indicated that late-winter Dunlin in Bodega Harbor were composed of two subpopulations: (1) a resident group that



feeds and roosts in the harbor, and (2) a mobile group that departs each day to roost and possibly feed elsewhere, returning in the early morning. And that's not all: the resident Dunlin weighed less, had less body fat, and were delayed in their spring molt schedule relative to the mobile group. Although the reasons for these differences are not known, one might reasonably suspect that the mobile birds were better at exploiting supplementary, non-tidal feeding areas. Another possibly is that the mobile group includes waves of early migrants moving through the region.

Peter Connors and John Maron have witnessed January-February declines in Dunlin at Bodega Harbor that are similar to dramatic declines observed by our studies on Tomales Bay. The reason for this mid-season decline is a bonafide ornithological mystery. However, the discovery of resident and mobile subpopulations in Bodega Harbor may provide some clues. Late winter departures of Dunlin could result from a protracted, early spring migration of certain subpopulations, or a shift from tidal mudflats to alternative (upland) feeding areas as increasing rainfall in mid-winter makes new habitat available (but where?). No answers yet.

ACR's Tomales Bay shorebird censusers must be wondering whether the mobile Dunlin from Bodega Harbor are visiting Tomales Bay. However, no substantial movement in or out of the Tomales Bay has been observed (yet). Are Tomales Bay Dunlin fragmented into two (or more) wintering subpopulations? The bay's string of disjunct tide flats, some separated by miles of water and differing tidal regimes, could support a complex array of shorebird populations and subpopulations — field observers beware of Dunlin on the move!

The Ardeid

Ardeid (Ar-DEE-id), n., refers to any member of the family Ardeidae, which includes herons, egrets, and bitterns.

The Ardeid is published twice yearly by Audubon Canyon Ranch as an offering to Cypress Grove Preserve field observers, volunteers, and supporters. To receive The Ardeid, please call or write to Cypress Grove Preserve. Subscriptions are available free of charge - however, contributions are gratefully accepted.

grasses expect to be grazed. They were, in a sense, invented by grazing animals. Grasses evolved into a life form that helps protect sensitive growing tissues by keeping them below the foliage, at ground level, until conditions are right for reproduction. Then, with amazing speed, via multiple growth nodes on telescopic stems, they extend floral clusters high into the wind to disperse and receive pollen. Until the European invasion, California's perennial bunchgrasses have known only intermittent grazing by elk, pronghorn, deer, and voles (meadow mice).

California voles may be the smallest grassland grazers (genus Micro-tus), but they are in fact the primary, primary consumers in the largest grassland food web — prairie plankton in a sea of grasses. Kites, harriers, owls, bobcats, badgers, foxes, weasels, and many other prairie predators benefit when vole populations, like lemmings, peak in some years, producing a superabundance of food — a microtine manna.

And voles are well adapted for this role, breeding continuously whenever green grass is available to eat (October- June). Newborn females can become pregnant before they are weaned. Fifteen hours after giving birth to 1-9 young, they can breed again. And again and again, every 22 days throughout the season. Rather than develop effective defenses against predation, they simply out-pace the demand by reproducing at an incredible edible rate.

Good places to see native coastal prairie on Tomales Bay are at Tom's Point, Tomasini Point, Marconi Conference Center, and Railroad (Martinelli) Point. A very excellent patch can be found along the isolated Estero San Antonio, just north of Dillon Beach. To get there, you must take a boat down to the mouth — listen for the Grasshopper Sparrows.

IN PROGRESS

Shorebirds

The spring census (three counts in April) will complete another year for the Tomales Bay Shorebird Project. The annual report will be available in August. New censusers are always welcome.

Plant Wars

Experimental "mow plots" at CGP are showing some interesting changes in the relative abundances of annual grasses and forbs; not surprisingly however, massive recruitment of Italian thistle and poison hemlock (exotic weeds) continues - this is only the second season of tests. The December freeze knocked out some patches of ice plant, but not nearly to the extent seen in inland areas.

Tomales Bay Plant Species Inventory

Grant Fletcher has computerized known records of Tomales Bay area flora. Please call CGP if you would like to contribute to this valuable data base.

Livermore and Olema Marshes

ACR staff and research committee are preparing a management plan with objectives that focus on improving habitat for (freshwater) migrating shorebirds, breeding passerines, and rails. The plan will include measures to control sedimentation, hydrology, and plant succession. A report on the final plan will be included in a future issue of The Ardeid.

Harbor Seals!

Mary Ellen King and Sarah Allen are observing "disturbance behaviors" of 300-400 harbor seals that haul out near ACR's Tom's Point; they hope to learn more about the extent of disturbance by boats and clammers in Tomales Bay.

Bat Rays!

Todd Hopkins of U.C. Davis is studying the eco- physiology of California bat rays. He and his volunteers are long-lining and tagging rays, and fitting some with sonic transmitters so daily and seasonal movements can be tracked. The project focuses on how these fish are adapted to seasonal estuaries like Tomales Bay.

Winter Waterbirds

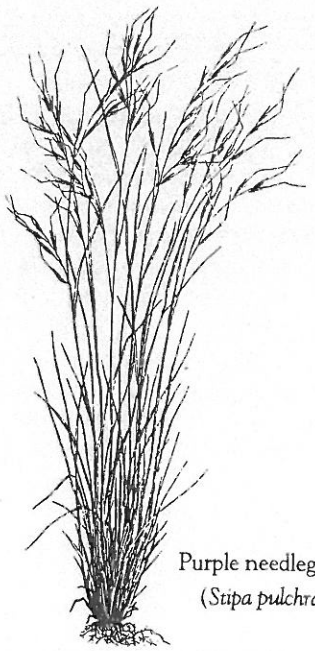
Believe it or not: three out of four mid- winter waterbird counts were canceled; two because of the only two mid-winter storms, and one because of protest participation when the Gulf War began. However our one successful census indicated that waterbird numbers were near normal for most species, in spite of a third consecutive year without Pacific herring!

North Bay Counties Heron/Egret Project

Get HEP! The Heron/Egret Project is roaring into its second season with a good understanding of colony locations and an army of enthusiastic field observers from Marin, Sonoma, Napa, Solano, and Contra Costa Counties.

Coastal Prairie

Six thousand native grass seedlings of six species are surviving and growing very well - the amazing late-winter rains arrived just in time! Call CGP if you would like to help monitor grassland plants in April-May or gather native grass seeds in May-July.



Purple needlegrass
(*Stipa pulchra*)

THE WATCH

CGP Field Observers contributing to T.B. Shorebird Project (s), T. B. Winter Waterbird Census (w), Aquaculture/Shorebird Project (a), North Bay Counties Heron/Egret Project (h), CGP Coastal Prairie Restoration Study (p), ACR Marsh Monitoring Project (m), and other activities (o) include:

Shirle Akers (h)
Sarah Allen (so)
Harold Appleton (p)
Bob Baez (sw)
Hugh Bain (sh)
Norah Bain (sh)
Bonnie Baker (p)
Tom Baty (w)
Rosilyn Bazurto (w)
Gay Bishop (shw)
Patti Blumen (h)
Janet Bosshard (hp)
Tom Bradner (h)
Pam Bridges (h)
Gordon Bryant (p)
Maggie Brown (swp)
Brian Bullick (swh)
Tom Byron (h)
Philip & Cathleen Cannon (h)
Marianne Caratti (h)
Walt Creber (h)
Eric & Ann Davis (h)
Patricia deBon (h)
Linda DeVere (spo)
Gwen Dhesi (s)
John Dillon (swpo)
Joe Drennon (w)
Lee Duncan (p)
Ted Elliot (h)
Steve Engel (sw)
Jules Evens (sam)
Bonnie & Jeff Felix (h)
Joe Ferreira (h)
Binny Fischer (h)
Virginia Fletcher (shpo)
Grant Fletcher (swhpo)
Sonya Foree (p)
Carol Fraker (sh)
Nicole Gallagher (swhpo)
Steve Gerber (h)
Rich Gibson (p)
Quinton Goodrich (h)
Margaret Greene (h)
Philip & Tamara Greene (h)
Peggy Gross (h)
Felicia Guest (s)
Madelon Halpern (h)
Eithne Haran (h)
Jill Hedgecock (h)
Edna Hickok (h)
Laree Holmes (hp)
Jennifer Joell (h)
Jim Ketsdever (h)
Mary Ellen King (ho)
Carol Kuelper (sp)
Jeanette & Olaf Leifson (h)
Laura Leek (wp)
Michelle Liapis (wp)
Rod MacDonald (p)
Lorraine Mackenzie (w)
Flora Maclise (shpo)
Jo Maillard (h)
Scott Mathieson (h)
Ellen Mcknight (h)
Harmony Mercedes (hp)
Jane Merriman (h)
June Morgan (h)
Milt Morgan (po)
Pix Morgan (p)
Gary Muerle (h)
Dan Murphy (w)
Karen Nagel (h)
Terri Nevins (h)
Scott Noack (p)
Mesa Nordbye (p)
Terry Nordbye (aps)
Richard Plant (w)
Grace Pratt (h)
Helen Pratt (h)
Ken & Gerrie Reichardt (p)
Rhio Reigh (h)
Dan Reinking (a)
Ellen Sabine (shp)
Karen & Dan Sandri (h)
Fran Scarlet (h)
Elaine Senf (hw)
John Shoemaker (h)
David Shuford (w)
Laurie Silver (h)
Anne Spencer (shwp)
Rich Stallcup (sam)
Jean Starkweather (h)
John Sutherland (h)
Edith Taylor (h)
Judy Temko (sph)
Janet Thiessen (shw)
Forest Tomlinson (s)
Lois Vansandt (hp)
Betty VanSchoick (h)
Tanis Walters (sw)
John Watkins (h)
Penny Watson (w)
Tom White (w)
Diane Williams (sw)
David Wimpfheimer (ahps)

Research Associates:
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Susan Kelly

Newsletter Design & Production
Linda DeVere

IN THE FIELD

April	26	Spring Tomales Bay Shorebird Census
	30	Spring Tomales Bay Shorebird Census
	Tuesdays:	Coastal Prairie Vegetation Analysis
May	2	Backup count day for Spring Shorebird Census
	4	ACR Seminar: Love Songs of the Myacamas (Ecology of bird songs; call 415/868-9244)
	7	Coastal Prairie: Microtus Runway Index Counts
	13 to 9 June:	Brood size estimates for the North Bay Counties Heron/Egret Project
	14	Coastal Prairie: Microtus Runway Index Counts
	18	ACR Seminar: A Natural History of Tomales Bay (call 415/868-9244)
	Tuesdays:	Coastal Prairie Vegetation Analysis and Native Grass Seed Collecting
June-July	Tuesdays:	Native Grass Seed Collecting
August	22	Fall Tomales Bay Shorebird Census (date tentative)
	29	Fall Tomales Bay Shorebird Census (date tentative)
September	10	Fall Tomales Bay Shorebird Census (date tentative)
	28	Native grass work day (green house)

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