COUNTING COWS ON THE HILLSIDE

The Census Data We Count On

The Tomales Bay Shorebird Project is in its fourth year. Twelve times per year, 15-20 volunteer field observers count all the shorebirds in the bay. Their ongoing commitment is impressive. And it's not an easy game. Gathering high quality data is a continual challenge.

Shorebirds rarely stand in line to be counted. But experienced shorebird censusers know what it feels like to estimate a flock at nearly the exact same number as another observer. You get an empowering sense of knowing what is actually going on out there. However, estimates may concur and yet remain far from the mark because of shared observer bias. Over time, observers can become overconfident, even reckless. The truth is, no matter how hard you work at it you can never know how many birds are really there.

During two recent workshops at Cypress Grove Preserve, shorebird censusers boldly checked their accuracy against precounted “flocks” (photos projected onto a screen and colored beans thrown across a table surface). Observers measured individual bias, adjusted their mental tally counters, tried again, then readjusted. In a quick check of group performance, the average group bias ranged from 8 percent below to 25 percent above the actual number—not too bad. But individual estimates were sometimes a bit wild. Inexperienced observers tend to undercount. Knowing this, observers often overcount. As we wrestled with our perceptions, the central message was clear: Check your field data carefully because the world is never just as it seems.

Serious birders were reminded that excellent field ornithology requires an attention to abundances—and that accuracy in counting is often not related to birding expertise. Most participants were humbled (if not shocked) by the experience, but then enjoyed a sense of improvement as we recalibrated our brains. Practice clearly reduces bias. Even counting cows on a hillside can improve one’s ability to perceive abundances in nature, which are, along with biodiversity, the fundamental parameters of ecosystems.

To control as many other sources of bias as possible, we follow a detailed census protocol. The protocol delineates (maps) 11 count areas, describes exactly how to cover each one, limits the count duration, sets census tides, establishes weather contingencies, defines strategies for dealing with movements of birds into or out of an area and recording unidentified species (please turn to page 3).
Tolames Bay Harbor Seals: A Colony at Risk?

Sarah Allen and Mary Ellen King

Sarah Allen has been monitoring harbor seals in Point Reyes since 1982. Mary Ellen King has coordinated a field study on disturbance behaviors of harbor seals at ACR's Tom's Point on Tomales Bay since 1991 (volunteer field observers will be needed from March through June). This article is excerpted from a paper presented at the Third Biennial State of Tomales Bay Conference (1992) --JK

Harbor seal colonies along the Point Reyes coastline represent about 20% of the estimated breeding population of the state of California. Tomales Bay is one of several locations along the Point Reyes Peninsula where harbor seals congregate onshore. Resting areas or "haul-out" sites in Point Reyes are found in remote areas on tidal sand bars, sandy pocket beaches, and offshore tidal ledges or islands. These haul out sites are critical habitat for seals because of their historical, physiological and reproductive significance. They have historical significance because seals congregate at the same site for years, perhaps centuries. Seals benefit physiologically from resting onshore after several hours of continuous diving for food. Seals rest onshore mostly during daylight hours for an average of 7 hours per day and retreat to the water to feed at night. The sites are important for reproduction because seals give birth and nurse their pups on land.

We conducted surveys of harbor seals in Tomales Bay during the periods 1982-1984 and 1991-1992. In the 1982 survey we determined that harbor seals in Tomales Bay haul-out on the southeast side of Hog Island, on tidal mud flats extending from Tom's Point to Sand Point, and on pocket beaches near Tomales Point along the west side of Tomales Bay. Between 1982 and 1984, the monthly average number of seals was least during the height of the breeding season (March-May; x=156; range=85-275) and greatest during the winter (November-February; x=194, range=93-355). This pattern contrasts sharply with all other haul-out sites in Point Reyes where maximum counts occur during the breeding season and followed by the annual molt period (June-August). Winter seal usage corresponds to when the Pacific herring spawn in Tomales Bay and several seals radio-tagged in Drakes Bay migrated to Tomales Bay in the winter. The summer decline coincides with elevated levels of human activities in Tomales Bay. Maximum pup counts in 1982 (58), 1984 (45), 1991 (86) and 1992 (55) were similar, although higher in 1991.

Harbor seals, when hauled out on land, are sensitive to the presence of humans, and when approached to within 100-300 m, will characteristically retreat into the water en masse. Short-term effects from disturbance include disruption of the resting period and mother/pup separation. Long-term effects include reduced overall usage, reduced reproduction, or abandonment.

We measured several variables to determine the reactions of seals to human activities in Point Reyes and found that seals in Tomales Bay experienced the highest level of disturbance of all haul-out sites in the Point Reyes area (Table 1). Seals were disturbed during 49% of our surveys in 1983 compared to 29% at Drakes Estero. In 1992 the percentage was nearly double (81%).

Clam diggers and fishermen (51%) were the major source for disturbance, followed by boats (30%), hikers (14%) and dogs (5%). In a single day several hundred people were observed digging for clams on the sand bars between Sand Point and Tom's Point. The average number of people counted during surveys in 1991 was 350 with a maximum of 1225 seen in one day; on average, there were 4 disturbances per survey period. These months also coincide with the pupping season. More recently kayaks and other boats launched at Nick's Cove likely are having a negative effect on the seals as they are hauled out on a near daily basis.
on seals at Hog Island where seal numbers have dropped sharply in the past decade.

Our results, along with the depressed pupping rate at Tomales Bay compared to other less disturbed areas, suggest that there may be a relationship between harbor seal reproductive success and human disturbance in Tomales Bay. Additionally, pup mortality rates were higher in Tomales Bay compared to other sites in Point Reyes, and several pups were removed each year by people assuming them to be abandoned.

**Cypress Grove Preserve OPENING!**

At a dedication on August 14th, 1992, Clifford Conly presented the Cypress Grove Preserve facility to Audubon Canyon Ranch. The Clifford Conly Center now houses the CGP library and meeting room. Thanks to Sue Baty and Diane Carpenter, materials are being catalogued in the new library.

**DUNN PROPERTY GOES TO GGNGA!**

Thanks to the determined energy of Skip Schwartz, Barbara Boxer, Alan Cranston, and many others, federal funds were appropriated in September for the acquisition of 52 acres adjacent to Cypress Grove Preserve by the Golden Gate National Recreation Area. This action protects an important part of the east shore of Tomales Bay.

**Counting Cows... (from page 1)**

ied species groups such as "downchasers" or "yellowlegs," and explains when and how to use specific counting methods for different bird densities, behaviors, and counting situations (poor light, falcon interference, in-flight counts, mixed-species flocks). At our next practice session, we will systematically measure observer bias and chart our improvement -- such direct reality checks may be valuable in interpreting results of the Tomales Bay Shorebird Project.

**IN PROGRESS**

<table>
<thead>
<tr>
<th>PLANT WARS</th>
<th>NORTH BAY COUNTRIES HERON/EGRET PROJECT</th>
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<tbody>
<tr>
<td>We have covered two 10 x 50-foot areas of African ice plant at Tom's Point with black plastic sheeting. After two of four months of complete shade, the ice plant appears mostly dead. Next question: will it regenerate? And what about the natives?</td>
<td>The beginning of the nesting season always sneaks up on us in mid-winter. Additional observers are needed to monitor the many colonies in our region. Last August a colony of 3 pairs of Great Blues and one pair of Great Egrets was destroyed by developers at Bodega Harbor.</td>
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**TOMALES BAY PLANT SPECIES INVENTORY**

We have adopted a standard system (Holland 1986) for classifying terrestrial plant communities and are forming a group of interested field observers to begin mapping vegetation and inventorying plant species around Tomales Bay.

**COASTAL PRAIRIE**

Everyone is invited to help plant this year's cohort of native grass seedlings on January 16th at CGP. Exotic annual competitors have a very strong head start this year. Please call the ACR office if you can help (415/868-9244).

**HARBOR SEALS**

Volunteer field observers are needed for the 1993 season (March-June) to study disturbance behaviors near ACR's Tom's Point (see article on page 2). Please call Mary Ellen King at 707/537-1546.

**SHOREBIRDS**

Last year's nearly complete February departure of small sandpipers from the south end of Tomales Bay followed more subtle but similar declines over the previous two winters -- but not in the north bay habitats.

**AQUACULTURE**

We are now in the fourth year of a five year study of possible effects of oyster farming on the use of intertidal habitat by wintering shorebirds.

**COMMON YELLOWTHROATS**

ACR field biologists are working on a study of yellowthroat foraging "niche" at ACR's Livermore and Olema Marshes. The 1993 breeding season will provide enough additional behavioral observations to complete this study.

**BLACK RAILS**

Chris Wood is studying vocalizations of California Black Rails (listed as Threatened in CA) at Olema Marsh, and has discovered some undescribed calls.

**HERON/EGRET VOCAL AGING**

Philip Greene and a team of field observers are recording vocalizations of known-age chicks. We hope to develop methods for aging chicks and comparing reproductive timing at other colonies in the region.

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**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 Field Observers, volunteers, and supporters of Cypress Grove Preserve. To receive The Ardeid, please call or write to Cypress Grove Preserve. Subscriptions are available free of charge; however, contributions are gratefully accepted.

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(Answer from page 1: 1033 Dunlin)
### The Watch

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<th>Field Observers</th>
<th>Projects since the last newsletter</th>
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<td>Aquaculture Project</td>
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<td>Harbor Seal study</td>
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<td>CGP gardens</td>
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<td>H</td>
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<tr>
<td>T</td>
<td>TB Plant Spp. Inventory</td>
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<td>M</td>
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<td>Coast Prairie Restoration</td>
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<td>S</td>
<td>TB Shorebird Project</td>
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<td>V</td>
<td>Heron Vocal Ageing</td>
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<tr>
<td>W</td>
<td>TB Waterbird Census</td>
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<tr>
<td>O</td>
<td>Other activities</td>
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### Shire Aker (H)
- Alena Dresser (H)
- Don Drorak (O)
- Ted Elliot (H)
- Jules Evans (ASM)
- Joe Ferreira (H)
- Dave Ferrers (W)
- Sue Ferrier (D)
- Ronny Fisher (H)
- Bob Fivus (HF)
- Virginia Fletcher (SHPC)
- Grant Fletcher (SHPC)
- Carol Foley (H)
- Carol Franklin (H)
- Keith Fraser (H)
- Nicole Gallagher (SP)
- Rich Gibson (HP)
- Robert Gleason (S)
- Margaret Greene (H)
- Gayle Greesley (S)
- Peggy Gross (H)
- Madelon Halpern (H)
- Kirk Hastings (HSWPMO)
- Edna Hickok (H)
- Cindy Hutchins (D)
- Maggie Hynes (HISPMS)
- Tim Jenkins (H)
- Ruth Johnston (O)
- Gerald Karr (H)
- Susan Kelly (CHPCO)
- Mary Ellen King (DHC)
- Carol Kuebler (S)
- Judith Lamoure (O)
- Laura Loek (W)
- Robin Leong (IP)
- Michele Lapes (HP)
- Karen Long (IP)
- Dallas Marrward (O)
- Bob Martinez (H)
- Ellen McKnight (H)
- Harry Mercerdes (H)
- Patience Mcllwain (H)
- Jane Merriman (H)
- Jean Miller (H)
- June Morgan (O)
- Milt & Ptx Morgan (O)
- Gary Muelle (H)
- Dana Silverdale (H)
- Guy Smith (H)
- Anne Spencer (HSWPC)
- Rich Stalcup (ASM)
- Jean Starkweather (H)
- Susan Stingle (D)
- Donna Sverdrup (C)
- Judy Temko (HISPMS)
- Dan Tiernan (H)
- Janet Thiesien (SHW)
- Elizabeth VanSant (V)
- Bill Van Schaick (HSO)
- Tanya Walter (S)
- John Watkins (H)
- Patrick Welch (H)
- Adeline Whitmore (H)
- Diane Williams (SW)
- David Wumpfheimer (AHS)
- Chris Wood (HMO)
- Brett Woods (H)
- Katherine Zimmerman (IP)
- Field Biologists
- Jules Evans
- Terry Northby
- Rich Stalcup
- Celeste
- Stephanie
- John Kelly
- Tom

## In The Field

### December

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<td>Tomales Bay Shorebird Census</td>
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<tr>
<td>19</td>
<td>Tomales Bay Waterbird Census</td>
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<tr>
<td></td>
<td>(&amp; Pt. Reyes Peninsula Christmas Bird Count)</td>
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### January

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<tr>
<th>Date</th>
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<tr>
<td>4</td>
<td>Waterbird Census Identification Class</td>
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<tr>
<td></td>
<td>with Rich Stalcup (please call CGP for info)</td>
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<tr>
<td>9</td>
<td>Tomales Bay Waterbird Census</td>
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<tr>
<td>23</td>
<td>Tomales Bay Waterbird Census</td>
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<td>26</td>
<td>Tomales Bay Shorebird Census + Extended Watch!</td>
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### February

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<tr>
<td>8</td>
<td>Tomales Bay Shorebird Census + Extended Watch!</td>
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<tr>
<td>9</td>
<td>North Bay Counties Heron/Egret Project: Preseason Meeting for Field Observers</td>
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<tr>
<td></td>
<td>(please call CGP for information)</td>
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<td>23</td>
<td>Tomales Bay Shorebird Census + Extended Watch!</td>
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**Audubon Canyon Ranch**

Cypress Grove Preserve • P.O. Box 808, Marshall, CA 94940

(415) 663-8203

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