Bird Brains
by Diane Lee and Nicola Clayton

The next time someone calls you a bird brain, simply say, "Why, thank you." Birds are amazing animals and bird brains are even more fascinating. You can see examples of their remarkable abilities in your own backyard!

Set out a few seeds and watch the neighborhood scrub jay pick them up hurriedly in his beak and fly off a short distance to hide them in various holes he has carefully dug in your lawn. If you watch long enough you may spot him sneaking back to his seeds, retrieving them from their hiding places, and nibbling away. What many people do not realize is that this friendly little jay has probably hidden hundreds to thousands of seeds in hundreds to thousands of locations all over your and your neighbors’ yards, only to remember where each seed was hidden and to retrieve them days, weeks, or even months later.

Studies have shown that food-storing birds, such as jays, crows, magpies, nutcrackers, chickadees, and nuthatches, perform this incredible feat using a particular form of memory for spatial locations. They also have revealed that spatial memory relies on the hippocampus, a structure in the brain of many animals, including birds, mice, rats, monkeys, and humans. This structure is also involved when memories must last a long time.

The hippocampus is larger in many birds and mammals that store or "cache" food than in similar species that are non-storers. Furthermore, the size of the hippocampus corresponds to seasonal differences in caching behavior. In the fall, some food-storing birds spend more time caching, cache more times, and leave their caches for longer periods than they do in the spring. Correspondingly, these birds have a larger hippocampus in the fall than in the spring.

Save the Date
1998 Christmas Bird Count
Saturday, January 2, 1999
More information and a sign up sheet coming in the December issue of El Tecolote. Questions? Call the Audubon office at 805/964-1469.

SBAS to Join the MAPS Bird Banding Program
By Kathleen Whitney

As part of our mission to further conservation efforts in SB County, SBAS will be joining the MAPS (Monitoring Avian Productivity and Survivorship) Program and opening our first MAPS bird banding station in May 1999. The MAPS Program, founded by the Institute for Bird Populations (IBP), utilizes a nationwide network of bird banding stations to gather information on the population sizes, demographics, recruitment, and survivorship of landbird species. The MAPS Program, now in its tenth year of operation, is endorsed by the National Audubon Society and the Neotropical Migratory Bird Conservation Program (Partners in Flight) as an important tool for avian conservation. Recent declines, particularly in neotropical migrant species, have motivated efforts to establish baseline (Continued on page 3)

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November Program

Wednesday: November 18
the
Carpinteria Salt March
Ecosystem
with
Wayne Ferren

Doors open 7:30 p.m./program 8:00 p.m.
at the Santa Barbara Museum of
Natural History, F arrand Hall
Free

As Executive Director of the UCSB Museum
of Systematics and Ecology, Department of
Ecology, Evolution, and Marine Biology AND
Associate Director of the Natural Reserve Sys-
tem and Marine Science Institute, Wayne Ferren
is an “old salt” in the areas of biology and con-
servation. He will present a rich and informative
program about the myriad bird and other
species which inhabit the Carpinteria Salt Marsh
just south of Santa Barbara for us this month.

Welcome New Members

Santa Barbara Audubon Society extends a warm
welcome to all new members. We look forward to
seeing you at upcoming Audubon programs and
field trips. We’re glad you’re part of the growing
number of local supporters for Audubon’s efforts
to excite people about birds and the preservation
of their habitat. Thank you for joining:

MR/MRS ROBERT BAKER
PAUL/VIRGINIA BARRETT
LESLEI BURTON
CLARK H EDWARDS
MRS MAURICE FAULKNER
MS MARY GIBSON
BRO. LAURENCE H ARMS
MS STAR HARTH E RN
ELSABETH J HUMPHREYS
ELEANOR JACOBS
MS CHRIS JOHNSON
NATHAN KANDUS
TERRY L KANESHO
MRS CECILIA KENDALL
NANCY MC SHANE
KARA MOORE
MS MURIEL A PERRY
DELORES ROMERO

MS PRAKASH SHIVA
STAN SPINK
MRS D THOMPSON
RAGNAR
THORENSEN
MARY VIGIL
RUTH WARREN
CAROL WASHING-
TON
MS V L WEISS
RICHARD L WHITE
MR JOHN S WILLIS

(Continued from page 1)

Perhaps most important, the hippocampi
of food-storing birds show considerable neural
plasticity. That is, the size and number of cells
in the hippocampus can change. For example,
a higher rate of cell birth, or neurogenesis, oc-
curs during the fall when caching activity is at
its peak. It was believed for some time that all
animals are born with a fixed number of brain
cells that gradually decreases with age—that
the brain is incapable of forming new cells.
Quite to the contrary, the Clayton laboratory
at UC Davis has shown that food-storing birds
are born with too few cells to accurately re-
member where their caches are hidden. Studies
have shown that young mountain chickadees
must be allowed to cache before their hip-
 pocampi grow. In fact, as few as three
episodes are necessary to trigger this brain
growth.

These remarkable brain and behavior
changes in the wild have been studied in the
laboratory of the UC Davis Biological Sci-
ences. Using a peanut-shopping exercise to
investigate the role of the hippocampus in
food retrieval in birds, they discovered that
hippocampal damage lead to impaired memory
formation for tasks that relied on spatial cues
but not for those that relied on color or visual
cues. (Please see original source for details of exercise.)

Another exercise compared the memory of
birds that do not ordinarily store food with
food caches. Instead of birds caching and re-
trieving food, researchers cached the food for
them and watched as they searched, found,
and remembered where food was hidden.
Alaskan black-capped chickadees were better
at remembering the location of a hidden
peanut than California white-crowned spar-
rows when asked to remember the location for
a short time (5 min.), and especially better
when asked to remember the location over a
long period of time (90 min.). Also, female
Alaskan chickadees were better peanut shop-
pers than the males. This observation was sur-
prising because in studies involving a variety of
species, including humans, males usually per-
form better on spatial memory tasks.

Bird brains hold great secrets of how the
brain functions when confronted with learning
new things. They also hold great promise. We

(Continued on page 3)
now know that bird brains are exceptionally plastic (capable of change) and may hold the key to unraveling one of the many ways that the brain forms memories. They may also be a vital link in understanding how the brain repairs and/or replenishes itself and aid in our attempts to prevent deterioration associated with age, disease, or physical injury.

Bird brain? Why, thank you very much!

Excerpted with permission from UC Davis Biological Sciences: News from the Division of Biological Sciences, Volume 6, No. 1, Winter 1998.

Field Trips

Hollister Ranch near Gaviota
1998 November 14, Saturday, 7:30 AM
Meet at mandatory carpool place
Birds of beaches, ponds, or stream sides
Guy Tingo, 805-681-0026, gingos@west.net
Reservations required (limited spaces)
Drivers may appreciate gas money
101 to Storke, Glen Annie exit in Goleta. Go south on Storke Rd to Jack-in-the-Box parking lot near corner of Storke Rd and Hollister Ave. Car pool from here. To reserve your space, leave your name with Guy no later than Thursday Nov. 12. Limit of two vehicles. If you are willing to drive a vehicle that seats many people, let guy know along with how many people your vehicle can carry. For those who only make the waiting list, take heart; indications are that we will be invited to Hollister Ranch again. Bring water and snack. Trip over by noon.

Museum of Systematics and Ecology,
University of California, Santa Barbara
1998 November 22, Sunday, 4:30 PM
Study skins of raptors, female ducks, and other species that you request
David Kisner 805-692-9792
kisner@silcom.com
From the north take 101 to Glen Annie, Storke exit and go south on Storke Rd to the end. Turn left onto El Colegio Rd and go east into the UCSB main campus. Bear left onto Ocean Rd then turn right onto University Rd. At the East Gate bear right onto Lagoon Rd and turn right into Lot 1. From the south take 101 to 217 to UCSB. At the East Gate bear left onto Lagoon Rd and turn right into Lot 1 and park. Walk west to Noble Hall (544), go to the 2nd floor and look for rm 222S which will be on your right as you walk west. Bring your field guide if you have one, pen and paper for notes. Beginning birders, you have the opportunity to see field marks "in the feather" and in your hand. Experienced birders already know the value of study skins for sharpening field identification skills. We should finish up by about 6 PM. Afterwards, those so inclined will go out to eat.

Unless otherwise noted, field trips are free and reservations are not needed. If you would like a loaner pair of binoculars for a trip, call the leader.
Calendar of Events

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<td>Pampas Grass Removal, Goleta Slough*</td>
<td>Sunday, Nov. 1</td>
<td>Contact Darlene Chirman for location</td>
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<tr>
<td>San Jose Creek Planting*</td>
<td>Saturday, Nov. 7</td>
<td>(if Oct 31 date rained out)</td>
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<td>Hollister Ranch ft.</td>
<td>Saturday, Nov. 14</td>
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<tr>
<td>Atascadero Creek Plantings*</td>
<td>Sunday, Nov. 15</td>
<td>(rain date Nov. 22)</td>
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<tr>
<td>Carpinteria Salt Marsh Ecosystem</td>
<td>Wednesday, Nov. 18</td>
<td></td>
</tr>
<tr>
<td>Museum of Systematics &amp; Ecology ft.</td>
<td>Sunday, Nov. 22</td>
<td></td>
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<tr>
<td>San Jose Creek Planting*</td>
<td>Saturday, Nov. 28</td>
<td>(Rain Date Dec 5)</td>
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*Please call Darlene Chirman if you have questions about volunteering at (805) 692-2008.

WORLD WIDE WEB SITE FOR SOUTHERN CALIFORNIA AUDUBON
FIELD TRIPS
http://socal.ca.audubon.org/trips.html

El Tecolote is published for the benefit of SBAS members. Subscriptions to the newsletter and non-member subscriptions ($15.00/year) may be mailed to Santa Barbara Audubon Society, 5679 Hollister Avenue 5B, Goleta, CA 93117. Please make checks payable to SBAS.

Population and Habitat
Local Case #1: The Devereux Slough
by Dave Wass

IT IS NOT NECESSARY to look too far to find an egregious example of population pressure negatively affecting bird habitat in our own region. Just take a ride to the Devereux Slough, where the parcel of land immediately south of the golf course is slated to be the site of 122 deluxe faculty homes. The University of California feels it needs to raise its student population cap to 20,000 in order to accommodate the expected increase in students statewide. Of course, more students means more teachers, and to attract the quality of faculty to meet its standards the University feels that it is necessary to build a class of housing suitable to attract those professionals.

So the University planners have chosen to build the best faculty homes here. Unfortunately, this will put at risk land that has been designated as Environmentally Sensitive Habitat (ESHA) by the Coastal Act. The Coastal Commission will not look favorably on this. But, the University feels it has no other choice.

Actually, in this case, despite the pressures, there must be other choices. We urge the University to look at other options and consider the negative effects of such development in an environmentally sensitive area.

Wildlife habitat encroachment due to human population growth can be seen right here in our midst, demanding our thoughtful consideration.

In This Issue...

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