

In Memorium



Dr. Donald Lee Dahlsten
Professor of Forest Entomology
University of California, Berkeley
(December 8, 1933—September 3, 2003)

It is with great regret that we announce the passing of our good friend and colleague, Don Dahlsten, on September 3, 2003 at the age of 69. Don died at the Alta Bates Medical Center in Berkeley after a two-year battle with a rare form of skin cancer.

Over the course of a 40-year career, Don developed a worldwide reputation as a respected leader in forest entomology and related fields. His research focused on the development of ecologically sensitive methods of managing insects that feed on trees in forest and urban environments. We are all aware of his pioneering work regarding the biological control of eucalyptus psyllids, but Don distinguished himself with research on the population dynamics of bark beetles and the factors that attract their natural enemies. His other projects included research on how the methods developed to control Pierce's disease-impacted riparian habitats, description of the life history and development of control strategies of elm leaf beetles, and the ecological impact of the sudden oak death pathogen, a fungus-like alga that has killed tens of thousands of oak trees throughout California.

Don was a true naturalist and had a deep interest in a wide range of organisms. He maintained one of the largest long-term databases of insectivorous birds in California's forest and riparian areas, and recently contributed a 20-page chapter on the biology of the chestnut-backed chickadee for the encyclopedia "Birds of North America."

Don was known, respected and loved by colleagues around the world. He worked and traveled extensively in France, Romania, Australia, Chile, and Brazil; and was one of the first biologists to work in China following its opening. Most recently, Don was in Mexico assisting in the establishment of an insectary developed to produce parasites of the eucalyptus psyllid.

Don was noted as a dedicated educator and was appointed as Associate Dean for Instruction and Student Affairs at U.C. Berkeley's College of Natural Resources in 1996. He advised 39 graduate students during his tenure, but he also taught literally thousands of natural resource, entomology and forestry students in his popular undergraduate courses. His influence extended far beyond the campus as he often addressed professional and civic groups, and he developed outreach programs through the College as well as through the University of California's interactive University Project.

Don received numerous honors throughout his distinguished career, including the UC Berkeley College of Natural Resources Outstanding Teaching Award in 1995, the UC Berkeley Distinguished Service Award and the College of Natural Resources Citation in 2003. He was perhaps most proud of being named the 2003 recipient of the Western Forest Insect Work Conference Founder's Award for Contributions to Forest Entomology. Don was an ardent participant in both the Western Forest Insect Work Conference and the California Forest Pest Council. He greatly enjoyed these gatherings and served in virtually every capacity in both organizations including Chair, Secretary, and Councilor in addition to his contributions on Special Committees, and as Local Arrangements and Program Chair. Also, let it be not forgotten that he was a multiple recipient of the "Ethical Practices" award given in past times by the Western Forest Insect Work Conference.

To many members of the Western Forest Insect and Western International Forest Disease Work Conferences, Donald Lee Dahlsten was not only a teacher, mentor and colleague but also a dear and special friend. He will be sorely missed.

Tribute Prepared by Patrick J. Shea and Tom Eager and Presented on Tuesday April 27, 2005

Plenary Session I WFIWC

WFIWC Founders' Award Presentation:

A Tribute to Dr. Donald Lee Dahlsten (1933-2003), 2003 Founders' Award Recipient

The Western Forest Insect Work Conference Founders' Award was established in 1991 to honor individuals who have made outstanding contributions to forest entomology in western North America. The award recognizes significant contributions in pest management, extension, research, and teaching. First presented in 1991, to Mark McGregor, the award is given to but one qualified nominee per year; however, an award is not necessarily presented every year. Nominations are submitted by Conference members to the Founders' Award Committee, and nominations are voted on by members of the Committee. Since 1991, there have been 12 recipients. Professor Donald L. Dahlsten (UC-Berkeley) was our 11th awardee.

Typically, the award recipient addresses the Conference the year following receipt of the award. Don received the award at the 2003 Conference, posthumously—although he had been apprised of his selection just prior to his untimely and unfortunate passing. It therefore became necessary to depart from tradition somewhat; and a few of Don's colleagues chose the following method of paying tribute to him, in lieu of an acceptance address.



Founders' award ceremony participants (L to R): Leo Caltagirone, Tom Eager, Pat Shea, Carol Wright, Janet Dahlsten



Ken Gibson begins the ceremony



Ken Gibson presents award



Mrs. Janet Dahlsten accepts Founders' Award



Patrick Shea



Leonard Brennan

A Panel Tribute to Don Dahlsten Patrick Shea and Tom Eager, Co-Moderators

Dr. Donald Lee Dahlsten was the 2003 recipient of the Western Forest Insect Work Conference's Founders Award. A tribute to Don started with Tom Eager reviewing Don's career as outlined in the Founder's Award nominating document. Tom had submitted Don's nomination for the award to the Committee.

Invited speakers were Dr. Leonard A. Brennan, Professor and Endowed Chair of Quail Research, Texas A&M University at Kingsville, TX and Professor Emeritus Leopoldo Caltagirone, Department of Entomology, University of California, Berkeley, who both reminisced about their personal interactions with Don.

Dr. Brennan took the opportunity to describe the importance and singularity of Don's career-long research on the role of insectivorous birds in western forest ecosystems. He characterized Don's 40 years of work using bird boxes to study food habits, foraging behavior and fledgling success of the mountain chickadee in the Sierra Nevada as unprecedented and without peer.

Dr. Caltagirone chose to reminisce about his personal interactions with Don and emphasized Don's kindness and dedication to his students. Dr. Caltagirone related how Don took the time to explain the intricacies of the National Football League and the importance of cheering for the 49'ers.

Pat Shea concluded the session by reviewing his relationship with Don on a professional and personal basis and then ended by reading a tribute prepared by Pat and Tom Eager that was entered in the notes from the Guadalajara WFIWC meeting and is presented on the first page of this Proceedings.

Research on Insectivorous Birds: A Few of Don Dahlsten's Contributions

Leonard A. Brennan
Caesar Kleberg Wildlife Research Institute
Texas A&M University-Kingsville

Don Dahlsten was an entomologist with ornithological credibility. His credibility in the world of ornithology was based on more than three decades of field research, and a series of resulting publications, which examined relationships between forest insect populations and insectivorous birds. Don's contributions to insectivorous bird research culminated with invitations from his ornithological colleagues to be a co-author of the mountain chickadee, *Poecile gambeli*, and senior author of the chestnut-backed chickadee, *Poecile rufescens*, species accounts for the acclaimed *Birds of North America* series (McCallum et al., 1999; Dahlsten et al., 2002; Figure 1). That the ornithological community invited Don to write these species accounts is clear evidence he was held in high esteem by this group of scientists. In today's world of hyper-specialization in science, it is a truly remarkable accomplishment for someone to be recognized as a leading expert on a topic outside of his or her primary area of investigation.

The purpose of this brief essay is to outline some highlights of Don Dahlsten's research on insectivorous birds. Although many of Don's entomological colleagues knew that he had long-term, ongoing projects on parids (chickadees and titmice), few understood or appreciated the stature that he gained among ornithologists over the years. This paper provides an opportunity to put this aspect of Don's career in a perspective that can be appreciated by his fellow forest entomologists. I will focus on these highlights of his work on chickadees as predators of forest insects.

Chestnut-backed and Mountain Chickadees

Don's projects on the chestnut-backed chickadee were initiated in 1973 in the Sierra Nevada and expanded in 1979 to the San Francisco Bay Area. Don initiated his work on the mountain chickadee in 1966 at a study area on the Modoc National Forest in northeastern California. Over the years this project expanded to include study sites in the Sierra Nevada and Tehachapi mountains. A common thread among these diverse study areas was a focus on diets of nestlings by using Super-8 movie cameras to record prey delivered by adults. As a by-product of these activities, which centered on grids of nest boxes, Don accumulated a tremendous amount of data on the breeding biology of these two species of chickadees.

Don's data on chickadee nestling diets were published in top-notch journals (see, for example, Grundel and Dahlsten 1991; Table 1; Kleintjes and Dahlsten 1992; Table 2) His data on breeding biology of chestnut-backed and mountain chickadees provided the foundation of these topics in the *Birds of North America* accounts (McCallum et al., 1999; Dahlsten et al., 2002).

Blodgett Forest Research Station

My initial interactions with Don took place from 1986 through 1989 at Blodgett Forest in El Dorado County, California as part of the field research for my dissertation project at the University of California, Berkeley. At Blodgett, both chestnut-backed and mountain chickadees were present, which provided opportunity to study these species in a zone of sympatry. This was an especially interesting topic because the chestnut-backed chickadee had expanded its geographic range during the past 40 years, and now overlapped extensively with the mountain chickadee.

During this time, we used the nest box grids as focal points for the study of differences in vegetation structure around nest boxes occupied by these two chickadees at Blodgett. During the breeding season, we also used nest boxes as foci for collecting extensive data on the foraging dynamics of these species, and continued collection of these data through the nonbreeding season by walking transects. Ultimately, a continuous set of foraging data spanning 34 months with >1,300 focal animal observations were collected (Brennan et al., 2000).

The outcome of these studies was that chestnut-backed and mountain chickadees exhibited broad overlap in their use of nest box sites (Figure 2; Brennan et al., 1999). The two species differed greatly in their use of some tree species, and overlapped broadly in their use of others (Brennan et al., 2000). For example, the foraging data showed that the chestnut-backed chickadee used Douglas-fir, *Pseudotsuga menziesii*, and California black oak, *Quercus kelloggii*, significantly more than the mountain chickadee. In contrast, the mountain chickadee spent significantly more time foraging on ponderosa pine, *Pinus ponderosa*, and sugar pine, *P. lambertiana*, than the chestnut-backed chickadee.

During the three breeding seasons of this study, both species of chickadees shifted their foraging to include a major increase in use of white fir, *Abies concolor* (Figure 3), presumably in relation to extraordinarily abundant bud-mining sawfly larvae. During the winter months, both species of chickadees shifted their foraging to include a major increase in use of incense cedar, *Calocedrus decurrens* (Figure 4), presumably in relation to an increase in population density of incense cedar scale. In most areas of their geographic ranges during winter, chickadees are extraordinary hoarders of seed foods in caches. We never observed chickadees hoarding food at Blodgett, presumably because the incense cedar scale provided an abundant and reliable food source through the winter.

The Tip of an Iceberg

This essay is just the tip of the iceberg with respect to Don Dahlsten's contributions to the ecology of insectivorous birds. A complete coverage of Don's research on insectivorous birds could fill an extensive book chapter or major review article in a scientific journal. In addition to the few citations noted here, Don published many other articles and book chapters based on data from his insectivorous bird research. Nevertheless, the common theme throughout Don's work in this field was that these were foundational studies grounded in a deep understanding of natural history. This is intellectually significant because Don's research on insectivorous birds was

designed to lay the groundwork for future studies to ultimately tackle a grand question that has evaded ornithologists and entomologists for decades: Can avian predation on forest insects act as a mechanism to control pest outbreaks?

While it may be decades before this deceptively simple question is answered, Don's research identified critical links from tree substrates to arthropods to birds and how they prey on these food resources in space and time. The foraging data from Blodgett set the stage for future workers to tackle projects that will have a high probability of success for understanding the functional and numerical responses of birds to white fir sawfly larvae and incense cedar scale.

Finally, one of Don Dahlsten's most enduring legacies for insectivorous birds may be from data not yet published. Don's chickadee and titmouse banding data are among the longest strings of such data ever collected. These data range from 22 to 35 years, depending on the study area. Analysis of these data with contemporary mark-recapture techniques has the potential to be a major contribution to ornithological and wildlife science.

Literature Cited

- Brennan, L.A., M.L. Morrison, and D.L. Dahlsten. 1999. Influence of vegetation on occupation of nest boxes by Chestnut-backed and Mountain Chickadees. *Northwestern Naturalist* 80:90-98.
- Brennan, L. A., M.L. Morrison, and D. L. Dahlsten. 2000. Comparative foraging dynamics of Chestnut-backed and Mountain Chickadees in the western Sierra Nevada. *Northwestern Naturalist* 81:129-147.
- Dahlsten, D. L., L. A. Brennan, D. A. McCallum, and S. L. L. Gaunt. 2002. Chestnut-backed Chickadee. Account Number 698 in *The Birds of North America*, American Ornithologists Union and Academy of Sciences, Philadelphia, Pennsylvania, USA.
- Grundel, R. and D. L. Dahlsten. 1991. The feeding ecology of Mountain Chickadees. *Canadian Journal of Zoology* 69:1793-1804
- Kleintjes, P. K. and D. L. Dahlsten. 1992. A comparison of three methods for analyzing diet of Plain Titmouse and Chestnut-backed Chickadees. *Journal of Field Ornithology* 63:276-285.
- McCallum, D. A., R. Grundel, and D. L. Dahlsten. 1999. Mountain Chickadee, Account Number 453 in *The Birds of North America*, American Ornithologists' Union and Academy of Sciences, Philadelphia, Pennsylvania, USA.

TABLE 1. MOUNTAIN CHICKADEE NESTLING DIET
(*N* = 55,694, MODOC CO., CALIFORNIA, GRUNDEL AND DAHLSTEN, 1991)

Hymenoptera larvae	38.6%
Lepidoptera larvae	25.0%
Coleoptera adults	12.6%
Diptera adults and larvae	8.2%
Spiders	5.6%
Homoptera adults	3.2%

TABLE 2. CHESTNUT-BACKED CHICKADEE NESTLING DIET
(CONTRA COSTA CO., CALIFORNIA, KLEINTJES AND DAHLSTEN, 1994)

Monterey pine sawfly larvae	42.6%
Tree camel crickets	17.0%
Hemiptera	4.9%
Lepidoptera adults and larvae	7.2%
Spiders	4.3%
Homoptera	7.3%

The Birds of North America, No. 402, 1988

(ILLUSTRATION BY CALLIE RALPH GARDNER, AND DONALD L. DAHLSTEN)

Parus
montanus

Mountain Chickadee

Range of Mountain Chickadee

The Mountain Chickadee, a small, cavity-nesting songbird, is one of the most common birds of montane coniferous forests from southern Arizona and Baja California north to British Columbia and the Yukon Territory. The closest living relative of the more familiar Black-capped Chickadee (*Parus atricapillus*), the Mountain Chickadee appears quite similar in biology to that better-studied species. Where the ranges of the 2 species overlap in the Rocky Mountains, they tend to segregate by habitat, but where both are sparse, most notably in the Rio Grande valley of New Mexico, they may hybridize extensively.

Mountain Chickadees cache winter seeds as soon as they become available in autumn. The need to defend dispersed seeds promotes group territoriality and hierarchical social organization in this and other chickadees. Dominance hierarchies regulate social organization within groups, and many juveniles desert to the lowlands in seed-poor years. Migrants return to the same social groups of unrelated birds in the spring, and all members tend to mate within these social groups year after year.

Mountain Chickadees are monogamous and territorial for the breeding season. Parents show significant individuality in prey selection when feeding young. Mountain Chickadees abandon foraging in a location when the time to capture prey there significantly exceeds the time to capture prey in previous visits to that site.




The Birds of North America
Life Histories for the 21st Century

Order: PASSERIFORMES Family: PARULIDAE

The Birds of North America, No. 406, 1988

DONALD L. DAHLSTEN, LEONARD A. BRENNER, (ILLUSTRATION BY CALLIE RALPH GARDNER)

Parus
rufescens

Range of Chestnut-backed Chickadee

Chestnut-backed Chickadee

Found in humid coastal and interior forests from southeastern Alaska to southern California, this chickadee has expanded its geographic range during the past 5 decades by colonizing forest habitats in the central Sierra Nevada and suburban areas in eastern San Francisco Bay. Although plausible explanations have been proposed, the exact reasons for this geographic expansion remain unknown.

The Chestnut-backed Chickadee is apparently most closely related to other "brown-headed chickadees" such as the Boreal Chickadee (*Parus hudsonicus*) and possibly the Grey-headed Chickadee (*P. cinereus*). Like its closest relatives (Mexican [*P. sclateri*] and Boreal Chickadees), this species lacks a whistled song; unlike them, it uses the Gargle call rarely. This reduction of repertoire diversity may be somewhat balanced by a particularly robust Chick-a-dee call complex.

Chestnut-backed Chickadees exhibit interesting patterns of foraging behavior by focusing on insects that live on Douglas fir (*Pseudotsuga mucronata*), and other conifer trees in the humid coastal regions and portions of the interior forest of the Pacific Northwest. They also make considerable use of insects and arthropod foods from broad-leaved trees. Like most chickadees and titmice, Chestnut-backed Chickadees nest in tree cavities and readily




The Birds of North America
Life Histories for the 21st Century

Order: PASSERIFORMES Family: PARULIDAE

Figure 1. The Birds of North America species accounts co-authored by Donald L. Dahlsten.

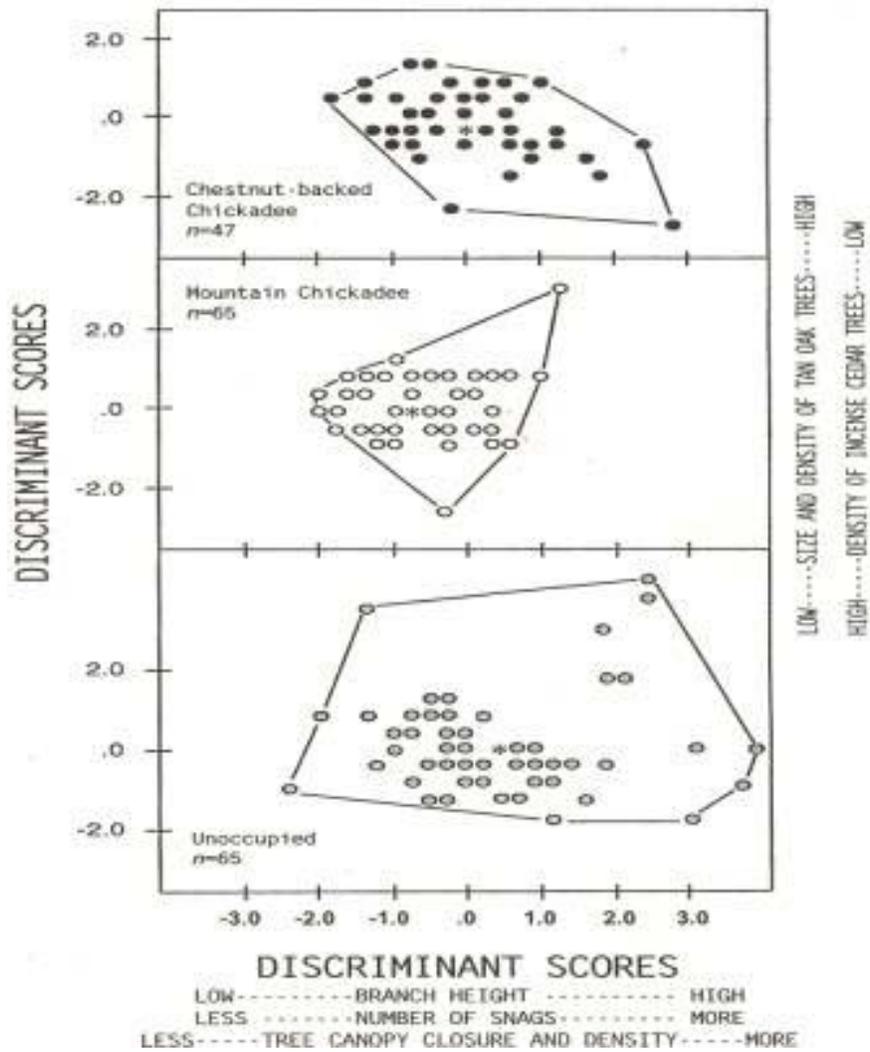


Figure 2. Overlap in habitat structure around nest boxes occupied by chestnut-backed and mountain chickadees at Blodgett Research Forest, El Dorado County, California (Brennan et al., 1999).

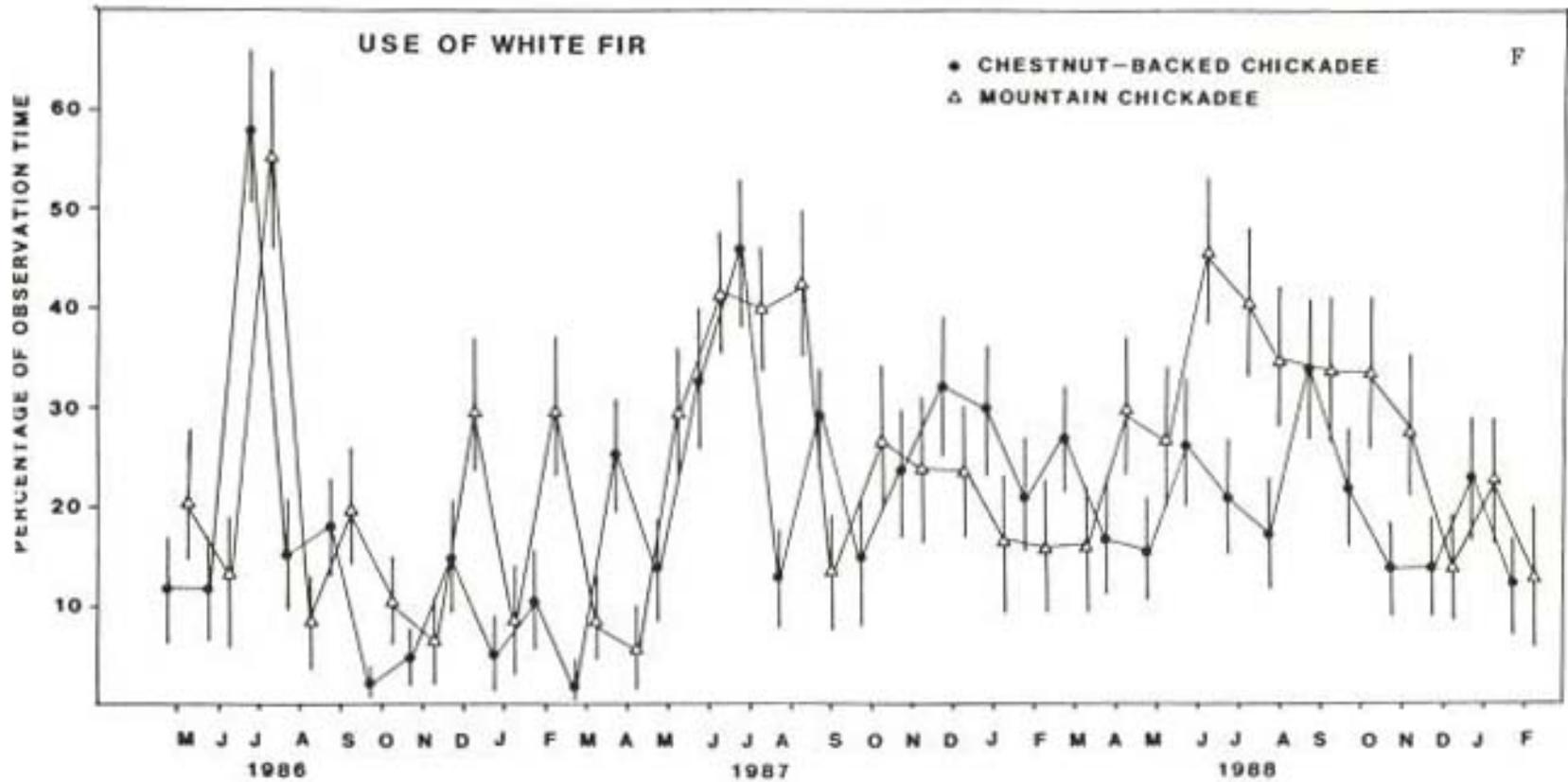


Figure 3. Use of white fir trees for foraging by chestnut-backed and mountain chickadees at Blodgett Research Forest, El Dorado County, California (Brennan et al., 2000).

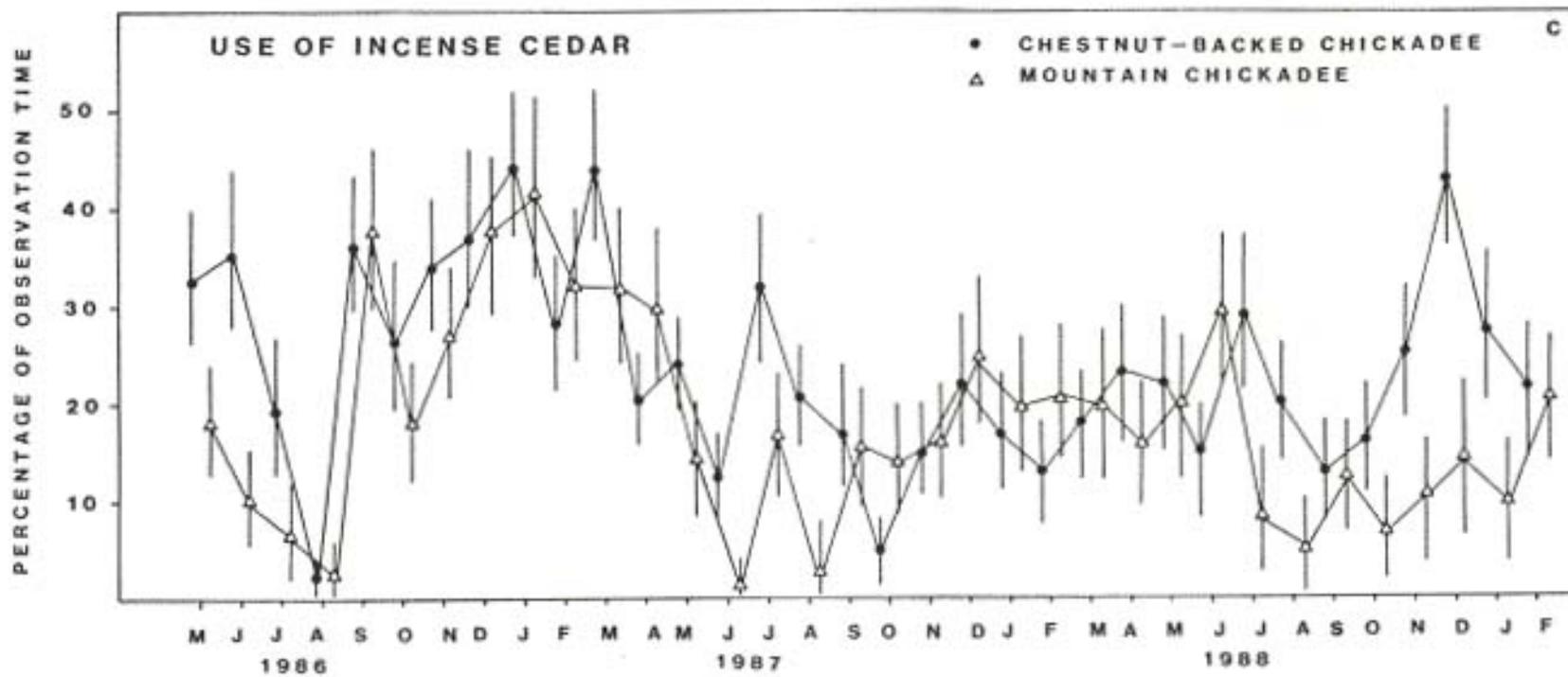


Figure 4. Use of incense cedar trees for foraging by chestnut-backed and mountain chickadees at Blodgett Research Forest, El Dorado County, California (Brennan et al., 2000).

Remembering Don

Leopoldo Caltagirone Emeritus Professor of Entomology/Biological Control ESPM – Insect Biology, University of California, Berkeley

I am honored to address you on the occasion of the WFIWC Founder's Award presentation as a tribute to one of its distinguished members – the late Don Dahlsten. Thanks to Pat Shea and the other organizers of this event for inviting me to be here.

Don's valuable scientific, educational, administrative, environmental accomplishments are well known to you, so I will not repeat them. Instead I would like to reminisce a little on the friendship that developed over many years between Don and me.

When Don joined the UC Berkeley Division of Biological Control at the Gill Tract I was already a member of that group. Because my activities were in agriculture and Don's were in forestry our interactions were limited to the general conversations in which all researchers, technicians, students, and visitors participated during the daily coffee breaks. Eventually I began to like this guy who had very clear professional goals, was very committed to try solving some environmental problems, and had political ideas close to mine. I cannot describe the very gradual process that took us from being colleagues in a research and teaching unit to considering ourselves friends. This process was accelerated when we discovered that he and I liked good food and good wine.

I did not collaborate with him in research until he undertook his work on biological control of eucalyptus psyllids; but frequently we discussed, argued, and mulled over subjects such as the definition of biological control, whether our research should be basic or applied, whether there was too much politics in academia, whether undergraduates were getting a fair treatment at Berkeley. However our conversations were much more varied; they included sports (the little I know of football and baseball I owe it to him), music (especially opera), wine (big subject!), food, traveling experiences, and in the later years our aches and pains

Our profession gave us opportunities to travel: to Spain and France in search of natural enemies of elm leaf beetle and deciduous fruits and nuts microlepidoptera (we also admired the vineyards of La Rioja and the Rhone Valley and enjoyed their products), to Chile to teach a course in biological control with Ken Hagen, Robert van den Bosch, Dick Garcia and others from the Berkeley and Riverside campuses; to Brazil to attend the VII Symposium in Biological Control, to Mexico where we collaborated with our local counterparts in the biological control of the red-gum lerp psyllid.

Don was passionately committed to his science, a devoted teacher, always concerned with the welfare of his students; an effective administrator (he claimed he didn't like administrative work, but I never believed him). He was most loyal to the University of California, although he would

let you know in no uncertain terms when he did not agree with university policies, which was not infrequent. This applied also to individuals: although he felt in disagreement, sometimes intensely so, I never heard him make maliciously a derogatory remark against anybody.

Don and his wife, Janet, were most gracious and generous hosts to their many visitors: researchers, prospective students, and just friends. My wife and I were frequent participants of the Dahlstens' hospitality.

For me, an immigrant with no other relatives near me, except my immediate family, Don's close friendship had an enormous value. I am greatly indebted to him. I miss him very much.

Don's Research Philosophy

- Work, Study, Get Ahead
- Drink, Party, Fool Around

...and the wisdom to know the difference!



Dave Wood, Don Dahlsten, and Steve Seybold
at a San Francisco 49er tailgate party (ca. 1994)