

MT. LAKE

ECHOS



1988

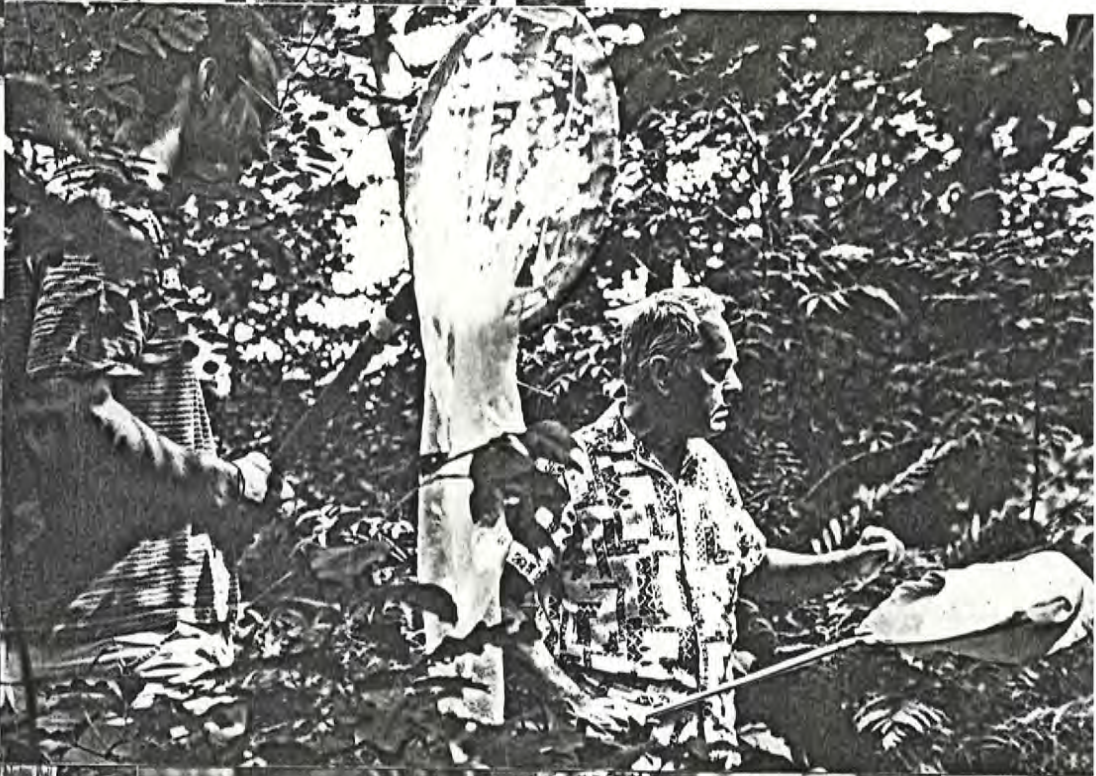


MT. LAKE ECHOES 1988

DEDICATED TO

GEORGE W. BYERS

MT. LAKER EXTRAORDINAIRE



View from the Mountain Top

Seasons Greetings to all you old Mountain Lakers. I hope that 1988 was a memorable year for you at the Station. It certainly was for me. It was with a great sense of homecoming that I shook off the dust of the biology chairmanship and picked up the reins at Mountain Lake. Except for those of you who had to pray for rain (Libby, Bill, Alicia?) it was a glorious summer. Never have we finished up with so large a proportion of our firewood unburned.

It was immensely encouraging to find the intellectual life of the Station in such a flourishing condition, thanks to the stewardship of Jerry Wolff and Blaine Cole. We are all sad to say good-bye to Blaine but wish him well in Arizona. Jerry will be back with us. He has consented to give his ever-popular course in Behavioral Ecology next summer.

In addition we have a smorgasbord of other goodies. Spencer Tomb returns with Plant Taxonomy, Jim Karr with Ornithology, and Jack Cranford with Mammalogy. Our own Henry Wilbur and Joe Travis will be on tap with Community Ecology.

Encouraged by the success of the mtDNA workshop last summer, we have expanded our offerings on the application of molecular techniques to field biology. Colin Stine will be back to do the mtDNA Workshop, Charlie Werth will again set up the Electrophoresis Workshop, and a new Molecular Workshop is being developed by two molecular geneticists from U.Va., Mike Timko and Dan Burke. They will delve into the mysteries of chloroplast DNA and gene cloning.

All of us were deeply saddened last year by the loss of our great friend and stalwart supporter Marilyn Ladd. Although she cannot be replaced, a new era has opened with the arrival of Denise Shifflett. Many of you will be talking to her or corresponding with her over the next few months. Let's all welcome her aboard.

Meanwhile we wish you a happy and productive year and look forward to seeing you back on the Mountain next summer.

Jim Murray



Caroline
 Bill
 Lise
 Walter
 Leah
 Mary Ann

Some say that it is the ending of an era. Others say that he'll be back. In either case, five of us were extremely fortunate this summer to be able to take George Byer's Biology of Insects. In our class, we learned some of the most unheard of things we ever heard of (doesn't that bring you back to the summer of '88?) For example, we learned the entomologists' creed: "Feed one, kill one, feed one, kill one..." If some of us (or more correctly most of us) slept through class on occasion, it was only a testimony to how hard we were working. Bill's enthusiasm and Leah's proclamation of "Key 'em out!" inspired us all to get more than the mandated (but elusive) 100 families. And best of all, George taught us all about bugs and showed us a good time while he was doing it. Thanks a lot, George! We sure appreciate it.





ECOLOGICAL GENETICS

David West, Kathy Lemon, Andrew Gerachis



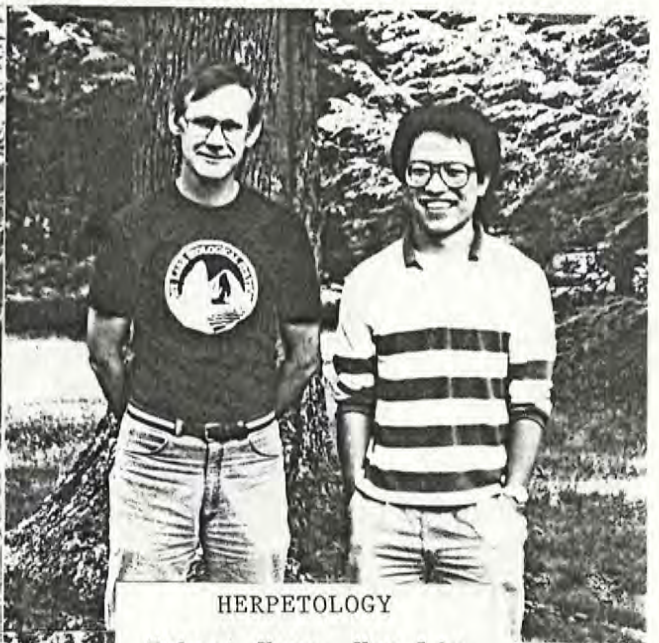
FACULTY

Row 1: Andy Taylor, Henry Wilbur, Hubert Keen
 Row 2: David West, Jim Murray, Director



QUANTITATIVE METHODS

Ann Swank, Pat Harris, Ava Fajen, Alexander Wait,
 Andy Taylor, Henry Wilbur, Jim Miller, Lise Rowe, Rob Uy

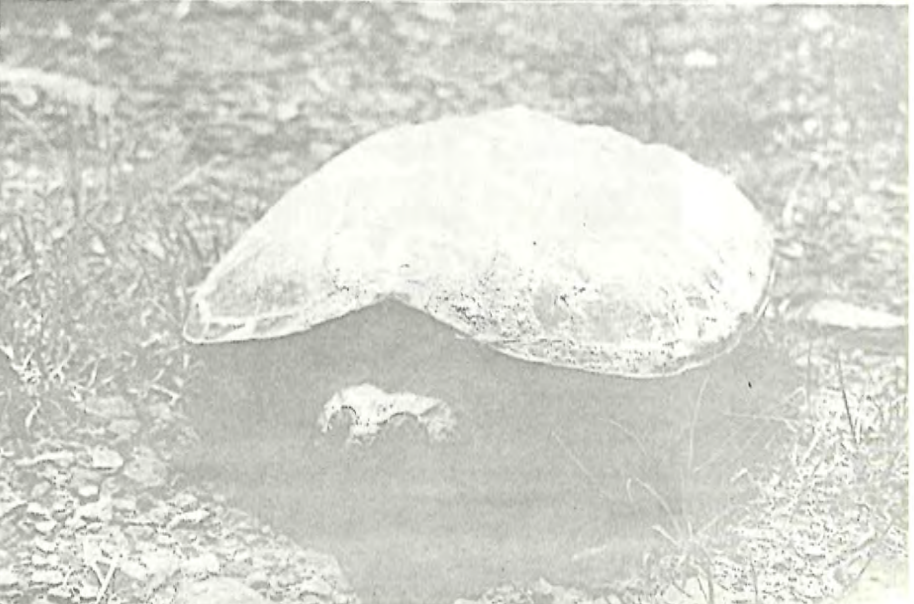
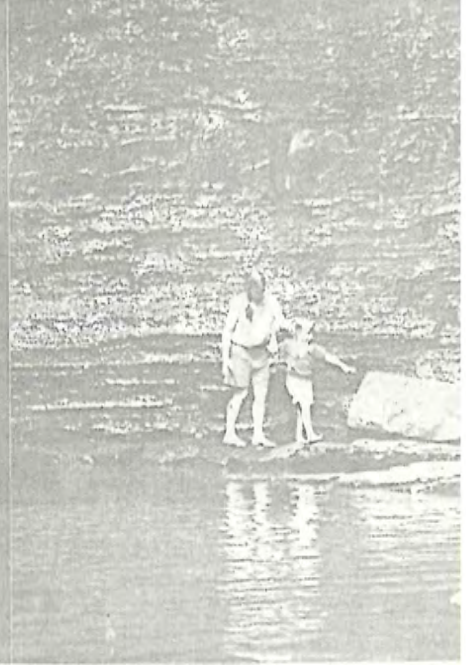
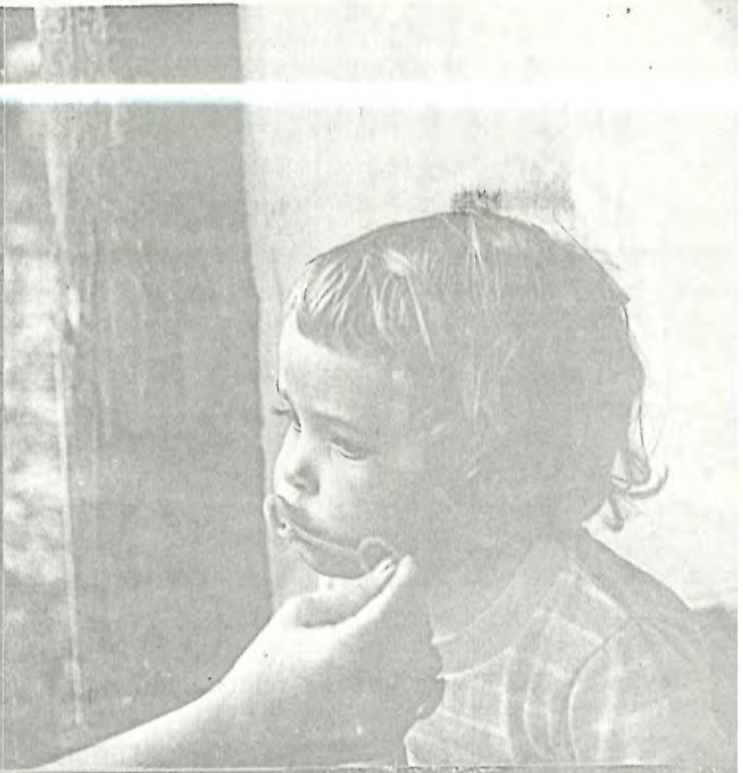
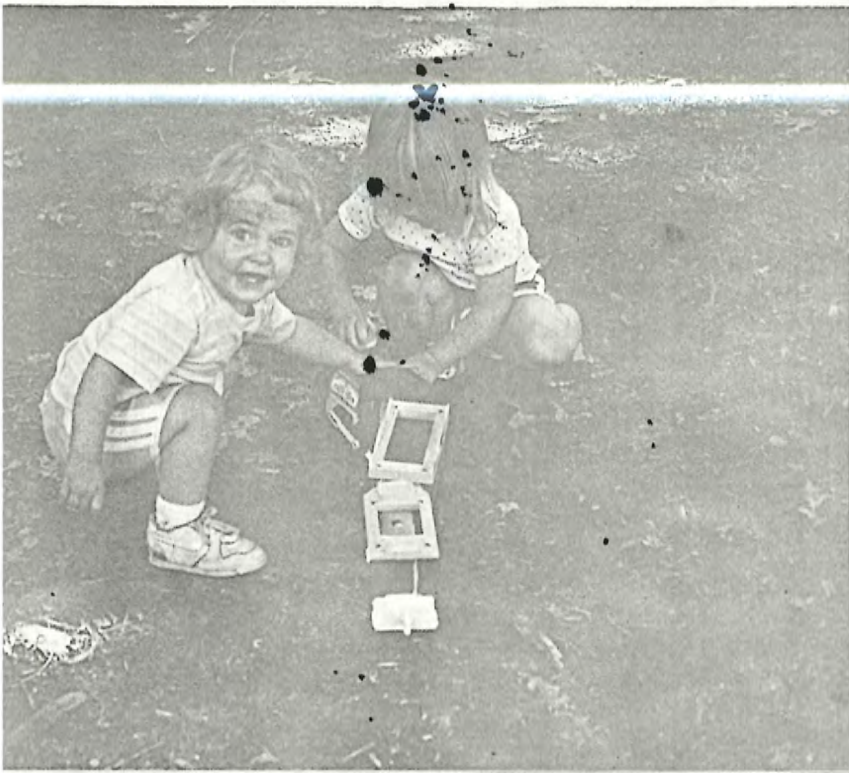


HERPETOLOGY

Hubert Keen, Ken Lin

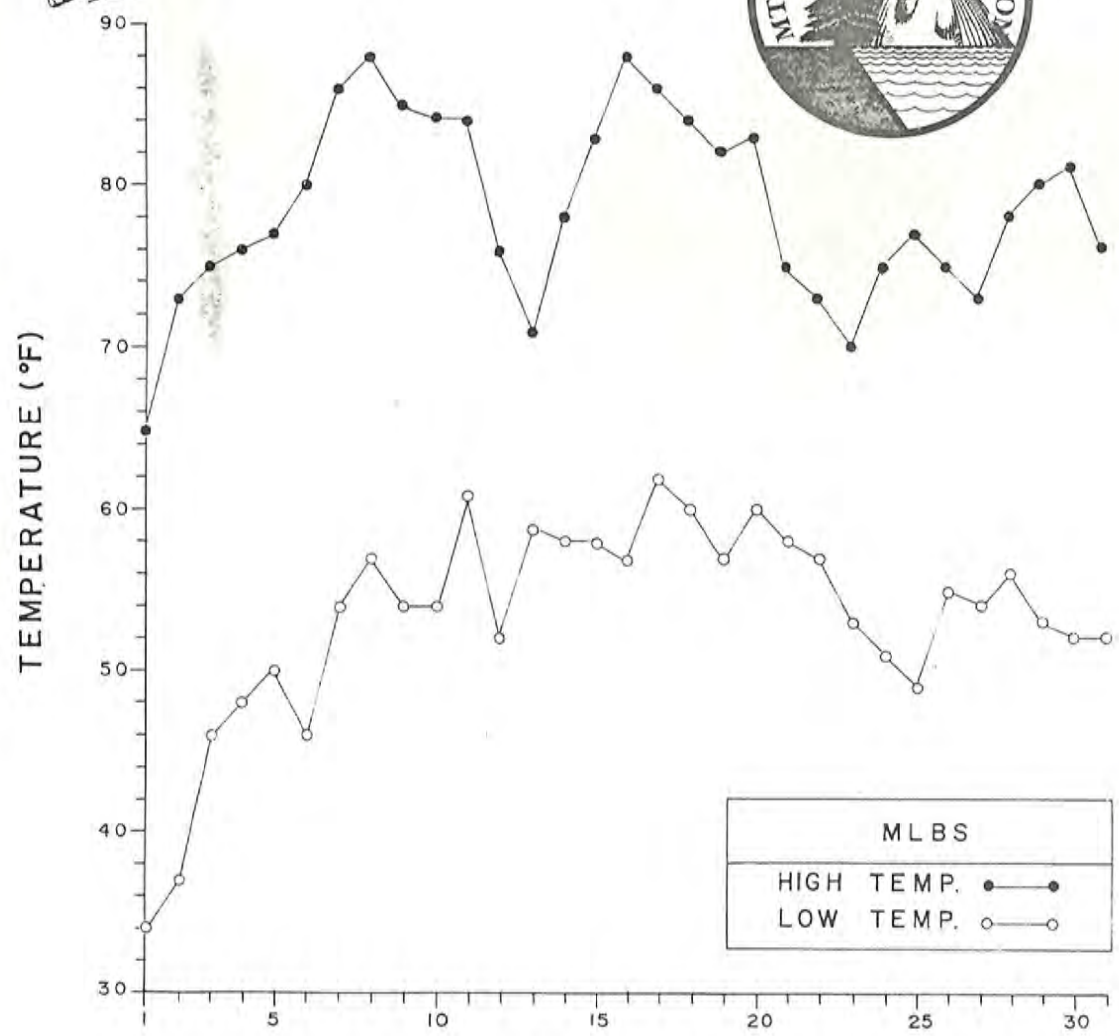


THE RESEARCHERS



Dirty Data

FILMED IN VIRGINIA AT



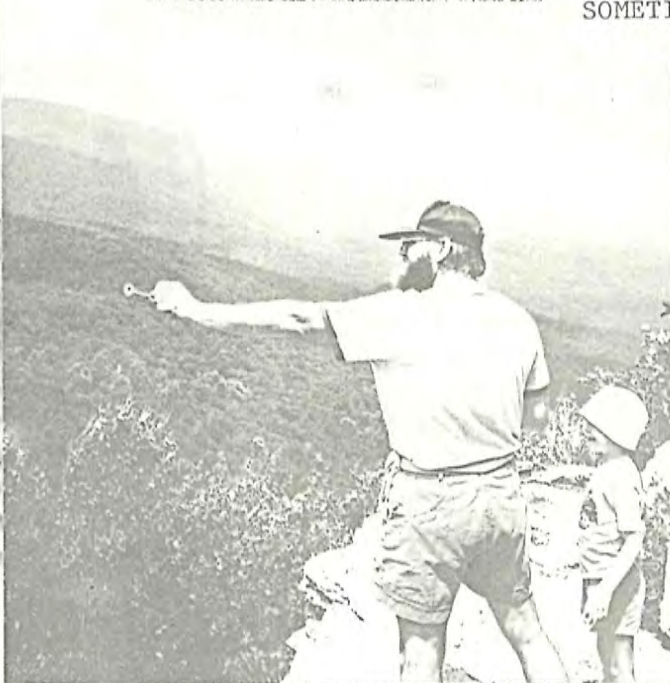
Q: What do farmers and Santa Claus like to do?
 Mighty Funny: They both like to go down chimneys.

Hair aside, bikes and babes are Giuseppe's life.

JULY 1988



SOMETIMES IT REALLY GETS TO YOU



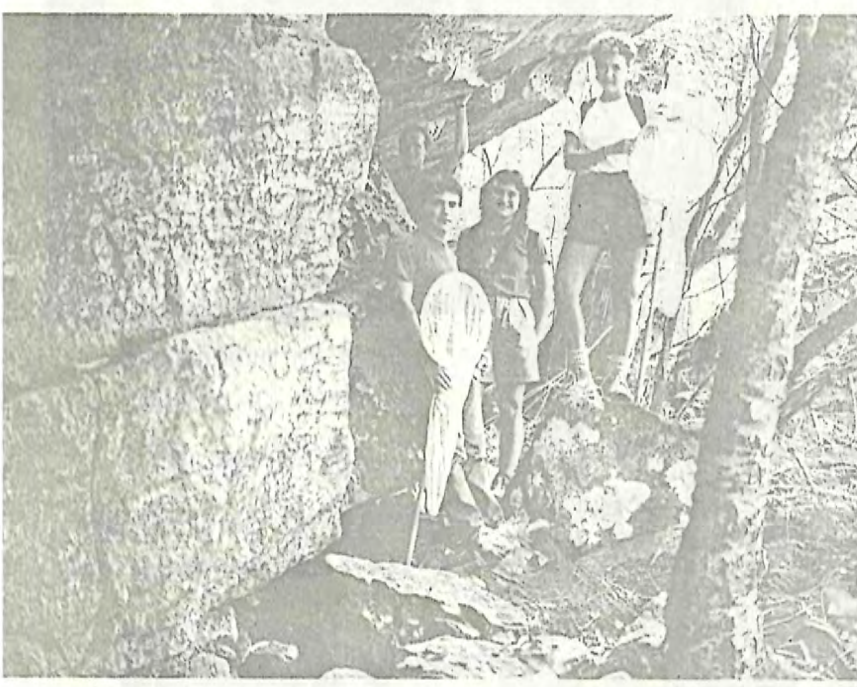
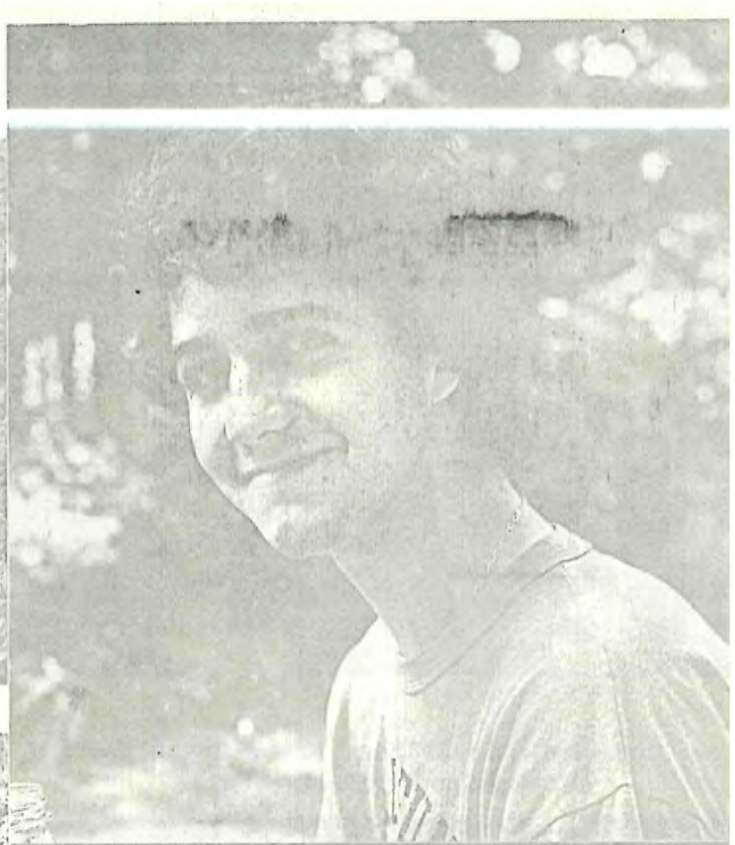


May Reynolds Elkins, Bruce Reynolds,
Katharine Reynolds Stark



PODIUM DEDICATION
(July 24, 1988)
IN MEMORY OF
KATHARINE G. REYNOLDS
(Wife of First Director)





THE EPIC BALLAD OF ZOOLOGY 574

A student named Ken (or Sal)
Had class with nary a pal
Except a prof named Keen
Now acting as Dean
Who taught him things herpetological.

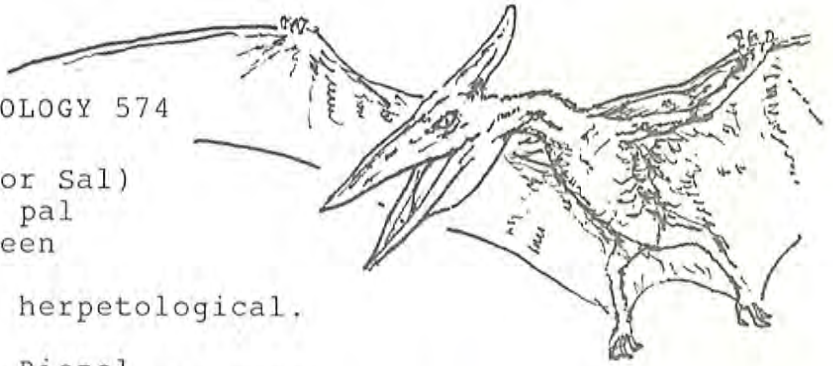
On a walk around Pond Riopel
Keen encountered a creature most fell
He grabbed its tail
And round did its head flail;
Nerodia sipedon defends itself well.

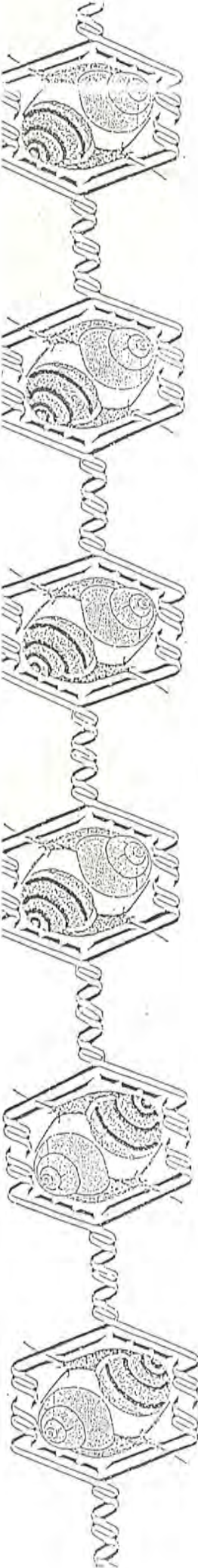
On Mount Rogers did Keen
Encounter a sleeping bag-mate unseen
In the morning was found
Mushed into the ground
The remains of a small desmognathine.

And there was a fellow named Les
Who caused Ken and Hubert distress
By bringing to class
A small brown bat carcass
Which dipteran larvae did infest.

But not everything was bad news
For these herpetologists, when they did choose
Would sit back and relax
And like lizards would bask
And calmly polish off a few brews.

(OK, so it doesn't rhyme very well and the meter is all screwed up. If you don't like it, please feel free to chew on a red eft for a while.)



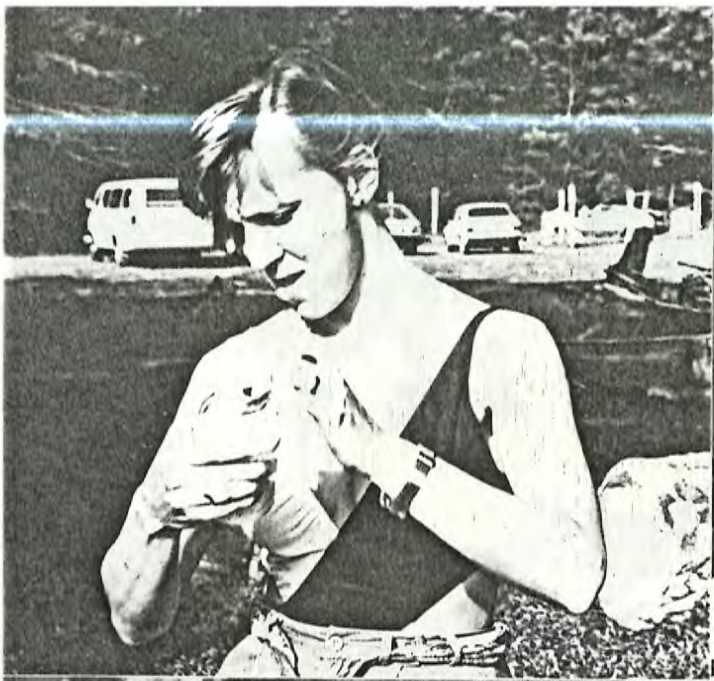


mtDNA WORKSHOP

The Mt. Lake Echo RI class at the Hind III recreation center under the indefatigable direction of Colin Stine got the station firmly on the mtDNA bamh-wagon. It also pitted graduate students against professors and long-time Ph.D.'s in the race to get mtDNA from individual research organisms. We began our race in pairs, staggered over a two-day period. As each did a "practice vert" and a "species of choice" preparation, our able leader began to alter protocols for the latter. Grad student Deb Hlavaty won with the ants, giving some meaning to the claim "the last shall be first". She and Felix Breden were the last pair to start a prep. Donna Cicirello, Retta Band, Dave McCauley, Felix Breden, Brad McPherson, Karen Adkisson, and John Elder triumphed on the 2nd or 3rd tries. Jim Gooch may abandon amphipods. Ed Sharp is still looking for a fail-safe invertebrate for high school biology.

Colin and Jim Murray, Director, were still awaiting the NRC license to handle radioactive probes. Va Tech generously allowed use of their facilities, and our successes made permanent photographic records of themselves. Remembrance of things past was definitely in order. After Colin left, the only Band anyone saw was Retta till Dave triumphed with milkweed beetles again. So with a little more practice maybe we will all be able to fulfill the aim, expressed by Avise (1986), "to compare the effects of different life-histories on genetic structure and in true specific phylogenies in a variety of species."

-Retta T. Band





Lilies bloom beside the pond at the University of Virginia Biological Station at Mountain Lake



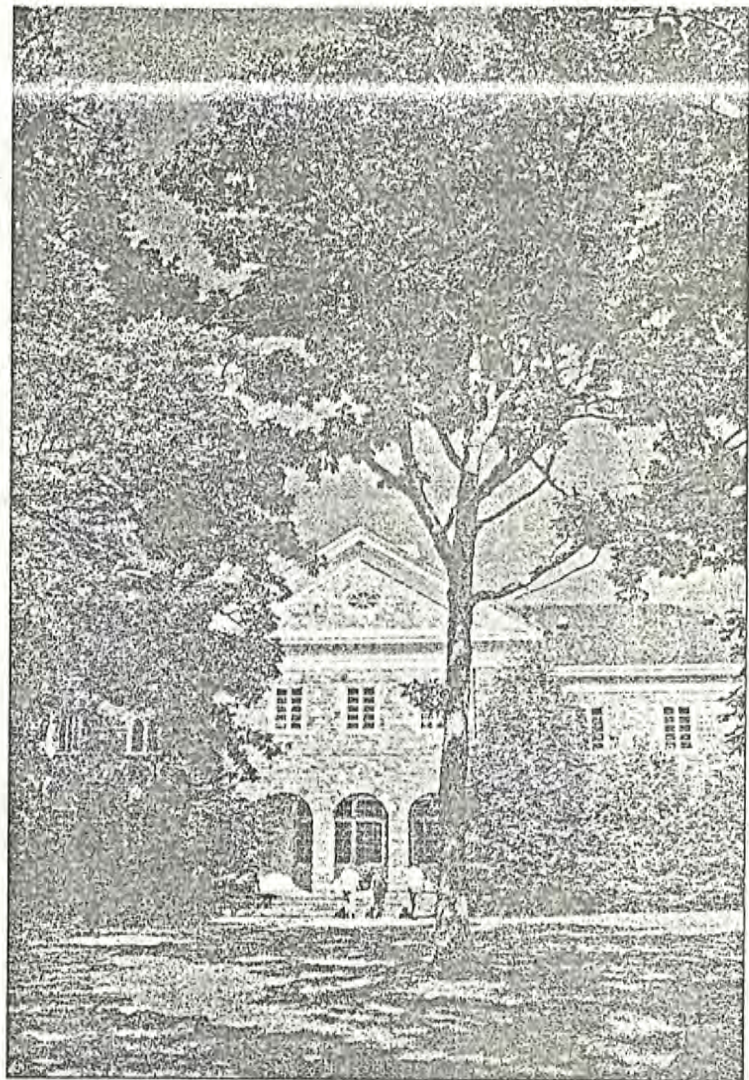
Research hideaway

At Mountain Lake, deep in Hokie country, UVA is busy studying nature

By SU CLAUSON

MOUNTAIN LAKE — The two-story gray stone laboratory rises like a mirage out of the oaks on top Salt Pond Mountain. On a stormy night, the building could easily be mistaken for the haunted lodge in the Jack Nicholson movie, "The Shining."

By day, the structure with its broad lawn and accompanying cottages looks like a rustic version of the University of Virginia's Rotunda and its lawn.



GENE DALTON/Staff

Uva's biological research station sits on 600 acres of Salt Pond Mountain

This is the University of Virginia Biological Station, deep in Virginia Tech's Hokie territory simply because Mountain Lake is the best place around to study Southern Appalachian flora and fauna, according to director J. James Murray Jr.

"The area is unique because of the lake," Murray said. "Mountain Lake is one of only two natural lakes in Virginia." (The other is Lake Drummond in eastern Virginia's Dismal Swamp.)

"The location is ideal because we have such a wide variety of habitats available to study," he added. "We have the kind of spruce forest one would find in northerly climates, like Canada, all the way down to the middle Virginia terrain around the New River."

It doesn't hurt that UVA's 600 acres of forest border on the Jefferson National Forest's 10,000 acres of protected woodland.

Murray can reel off a list of birds found here, but not in the surrounding lowlands — rose breasted grosbeak, chestnut warbler, black-capped chickadee, indigo bunting and more. These birds are usually found in cooler Northern climes.

Ravens also seek out the mountain's solitude. The trilling calls of vireos, woodthrush and other deep forest birds can also be heard here.

The mountain is also habitat for several species of orchid, a rare malow and a species of fern found nowhere else in the world. Northern and southern plants mingle in this preserve.

Wildlife abounds. Deer have become a nuisance, eating off the buds of plants being studied by Biological Station scientists.

But the first thing one notices about the Biological Station, after one drives the 20 miles from Blacksburg, two miles past the Mountain Lake Hotel, is the coolness.

And the quiet.

It's so quiet that UVA graduate student Deb Hlavaty can hear ants marching through the dry leaves and undergrowth.

Ants are Hlavaty's specialty. For the last two summers, she has lain in wait, observing as armies several hundred strong march on the colonies of neighboring ant species.

"A few ants go running in and spray around an alarm pheromone," she said. "Pretty soon the resident ants come running out, carrying their larvae."

The marauding ants steal the larvae, run home and eat them. Those they don't eat grow up as slaves in their captor's colony.

"We aren't sure whether the invader ants actually intended to take slaves or whether the slaves resulted from food that got too old and hatched," Hlavaty said.

Hlavaty and her advisor, Blaine J. Cole, of UVA, say they can find an ant raid in the Mountain Lake area almost any day of the week between June 1 and the end of August.

"We don't draw any parallels between insect behavior and human behavior," Hlavaty said.

Neither does Ellen Ketterson, an Indiana University professor who has been studying the parenting cooperation between male and female juncos.

"Although humans seem more similar to birds than they do to most other mammals," Ketterson said. "Most male mammals don't provide care for their young."

In the study Ketterson and her colleagues are doing, male juncos are captured and caged after the young have hatched. The single female is able to provide for all the young up until they reach the semi-independent adolescent stage. At this stage, the young birds make awkward attempts to leave the nest. Now they must not only be fed, but they must be taught how to fly. The solo female is able to successfully rear only half her brood through this stage, Ketterson said.

Other biology students and faculty from at least 15 other colleges are studying algae, mate selection among salamanders, distribution of local fish, plant-fungus interactions, the activity patterns of land snails and many other topics.

For two five-week sessions each summer, courses are offered to students with at least a general background in biology.

"Our students are not necessarily biology majors," said Murray, who acts as station director in alternate years. "We treat one small area of biology in great depth, so we're not heavy on prerequisites."

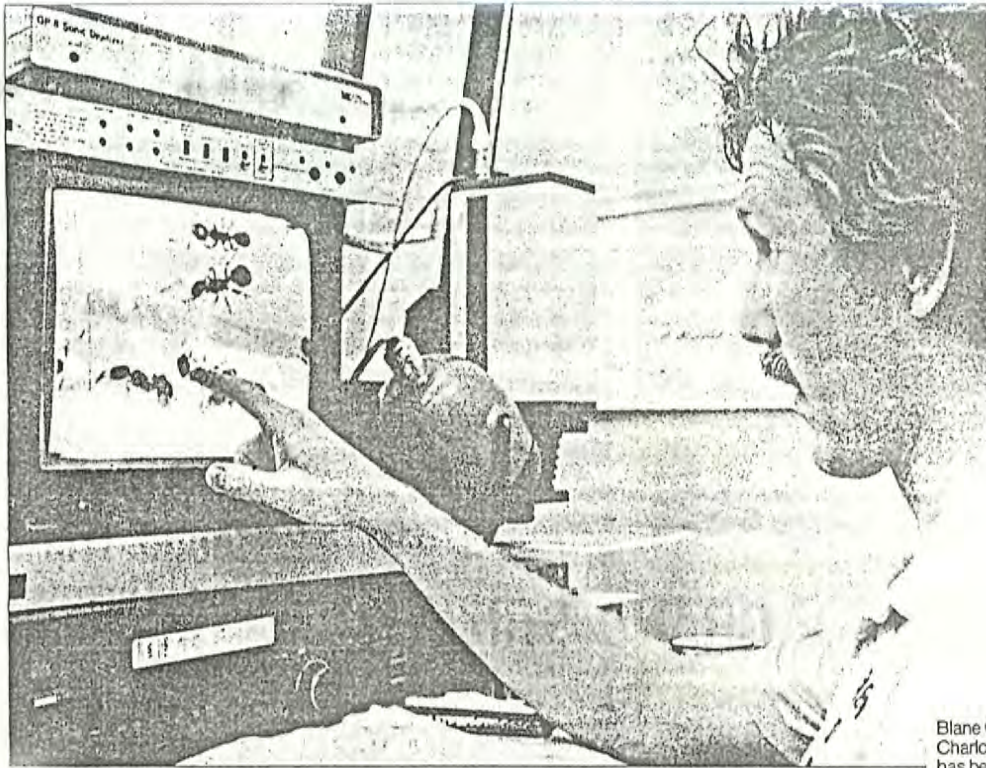
Students attend lectures and do research projects. They work along side of researchers and well-known faculty members from scattered parts of the nation.

Everyone lives in cottages or dormitories and eats in a rustic log dining room. Daily volleyball games, basketball and croquet keep residents in shape.

There are no TV sets at the station and no newspapers unless someone makes the trip into Blacksburg or Pearisburg. Thought is as likely to move backward as forward, especially if one is sitting under McKinley Oak, the tree under which three future U.S. presidents — McKinley, Hayes and Garfield — as Union forces retreated over the mountain. Hikers have also found Union ammunition — miniballs, bayonets and cannon pieces jettisoned when Crook's forces retreated into West Virginia in the spring of 1864.

The Mountain Lake Biological Station was founded in 1930 by two UVA professors, Ivey Lewis and

Bruce D. Reynolds. For the first four years the station operated out of Thompson Cottage at Mountain Lake Hotel. In 1933, a generous grant from Salt Pond Mountain landowner John Laing, enabled the school to start building cottages. The fieldstone laboratory and classroom building was constructed in 1939.



Blane Cole of Charlottesville (above) has been using a microscopic video camera to study the social behavior of ants.



Licia Wolf (left) holds a dark-eyed juco — one of the species she is studying this summer at the Mountain Lake biological station.

GENE DALTON/Staff



QUANTITATIVE METHODS IN FIELD BIOLOGY:
An Experiment in Sheer Mental Exhaustion/Terror
by Andy Taylor and Henry Wilbur

ABSTRACT

Several weeks after the completion of a 5 week battery of treatments (see Sokal & Rohlf, 1981) a specialized analysis of the effects upon the sample population was run. This analysis, an ANODE (Analysis of Deviance, follows and is based on the predictor variable "time spent lost or annoyed in class." (Note: It was originally intended that predictions be made based on "time spent awake in class" but too few data points were available.) It should be noted that a regression might fit the sample group better but Zander isn't here to do it.

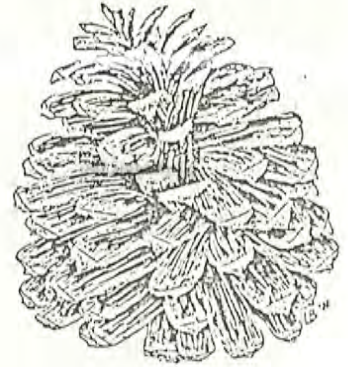
Analysis of Deviance for group B575

Source	df	Sum of Squares	Mean Square	F-test result
<u>MAIN EFFECTS</u>				
Jim M.	2	245.92	122.96	p = .05
Lise R.	3	229.03	76.51	p = .05
Pat H.	4	277.06	$\frac{25}{-}$	p = .025
Rob U.	2	-229.03	-119.515	p = .03
Ava F.	3	652.03	217.34	p = .005
Zander J.	4/3	144.54	109.405	p = .0001
Ann S.	6	240.18	80.03	p = .003
<u>INTERACTIONS</u>				
Jim x Rob x Zander	$\frac{16}{3}$			
Zander x Ava	4			
Ann x Rhobulululul	0			
Pat x Tern-Fern	0			
J x L x P x R	∞			
x A x Z x A				

Sums of squares for interactions all begin at INFINITY and increase from there. All were deeply significant.

CONCLUSIONS

All subjects contributed significantly to the overall deviance of the class. Interestingly, though the interactions were all highly deviant, they also served to contribute to overall stability (mental/emotional) as well. No statistical explanation for this phenomena has been discovered.



NATURAL HISTORY OF THE SOUTHERN APPALACHIANS

Natural History of the Southern Appalachians was quite an adventure. Miraculously we all survived both the field trips and the "hugely large" subject matter--5½ days a week--several overnight camping trips--and readings, readings, readings!

We were a diverse group of students -- our ages ranged from 18 to 53. It was Bernadette's first field biology course. John, a senior at UVa, had always enjoyed hunting and fishing and so was at home in the outdoors. Anne and JoAnne were both school teachers--Anne taught math and JoAnne taught life science.

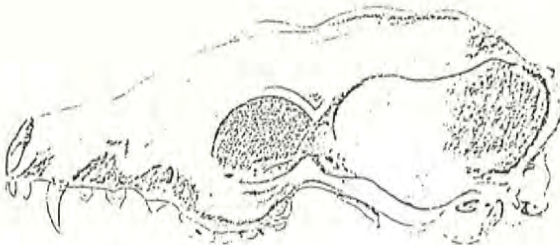
In terms of athletic ability our capabilities ranged as much as our ages and experiences. At various times we were called upon to demonstrate climbing skill, strength, endurance, fortitude, speed and blind faith in our leader. By pulling together with spunk & determination we helped each other meet the challenges; and at the end we all agreed that we wouldn't have missed the experience for anything.

Our professor, Phil Shelton, is the kind of character about whom Mt. Lake legends are made. Bearded, blond hair gleaming where it hung from beneath his Australian bush hat, britches rolled up to the knee, and barefooted he led us through some of the most difficult terrain and some of the thickest thickets we'd ever seen. And he moved FAST! No fern escaped his notice--no bird song went unheard--and no rock formation was overlooked.

At the station he organized a group of classical musicians--the Salt Pond Symphonetta--with whom he played his grandfather's violin. In true Appalachian style he could turn that fragile violin into a mountain fiddle. A man of wide-ranging interests and unusual abilities, he was most accurately described by John as a "renaissance mountain man."

From water gap, across shale barrens through rhododendron hells, into upland bogs; down into sink holes, and to the highest peak in Virginia we followed Dr. Shelton across country--rarely on trails, and heaven forbid that we should back track! Our class theme became the quote given us by Dr. Murray while we sat lost in dense fir regeneration on Mt. Rogers, waiting for Dr. Shelton to return from a scouting foray and to lead us out of the wilderness. Dr. Murray's friend, Al Moore, had this to say in similar situations: "After wandering for days in this trackless forest, we are inextricably and inescapably lost. Our bones will bleach in the noonday sun as a mute but eloquent testimony to the ineffable folly which we have this day committed."

John Gillespie
Bernadette Kempton
JoAnne Pierce
Anne Zirkle



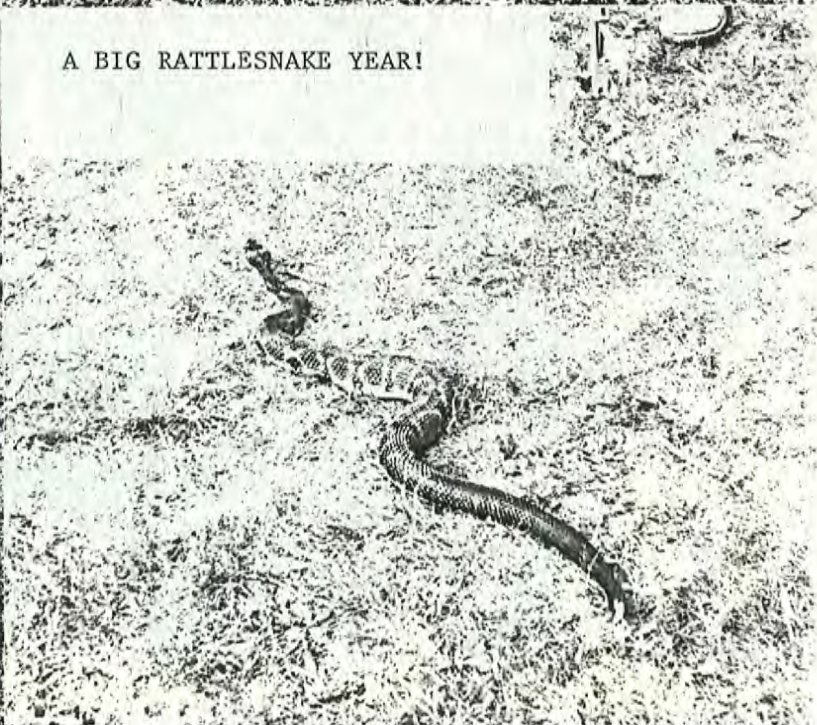
they
♥
BUGS

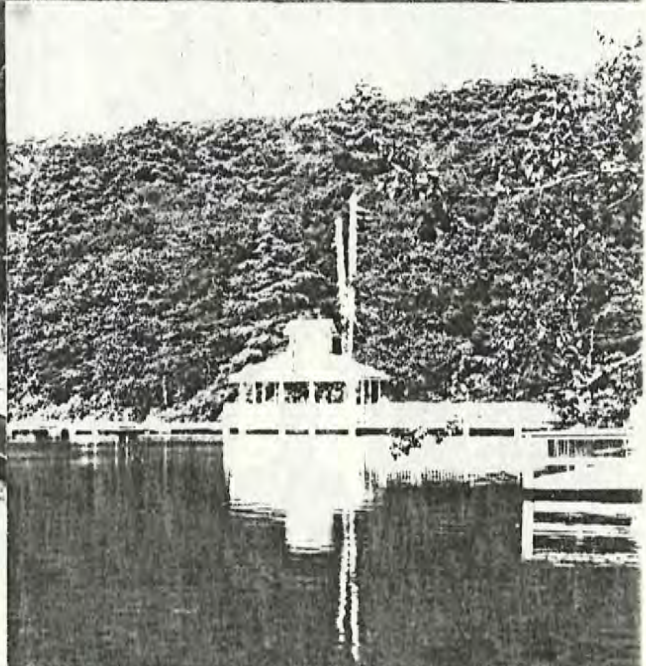


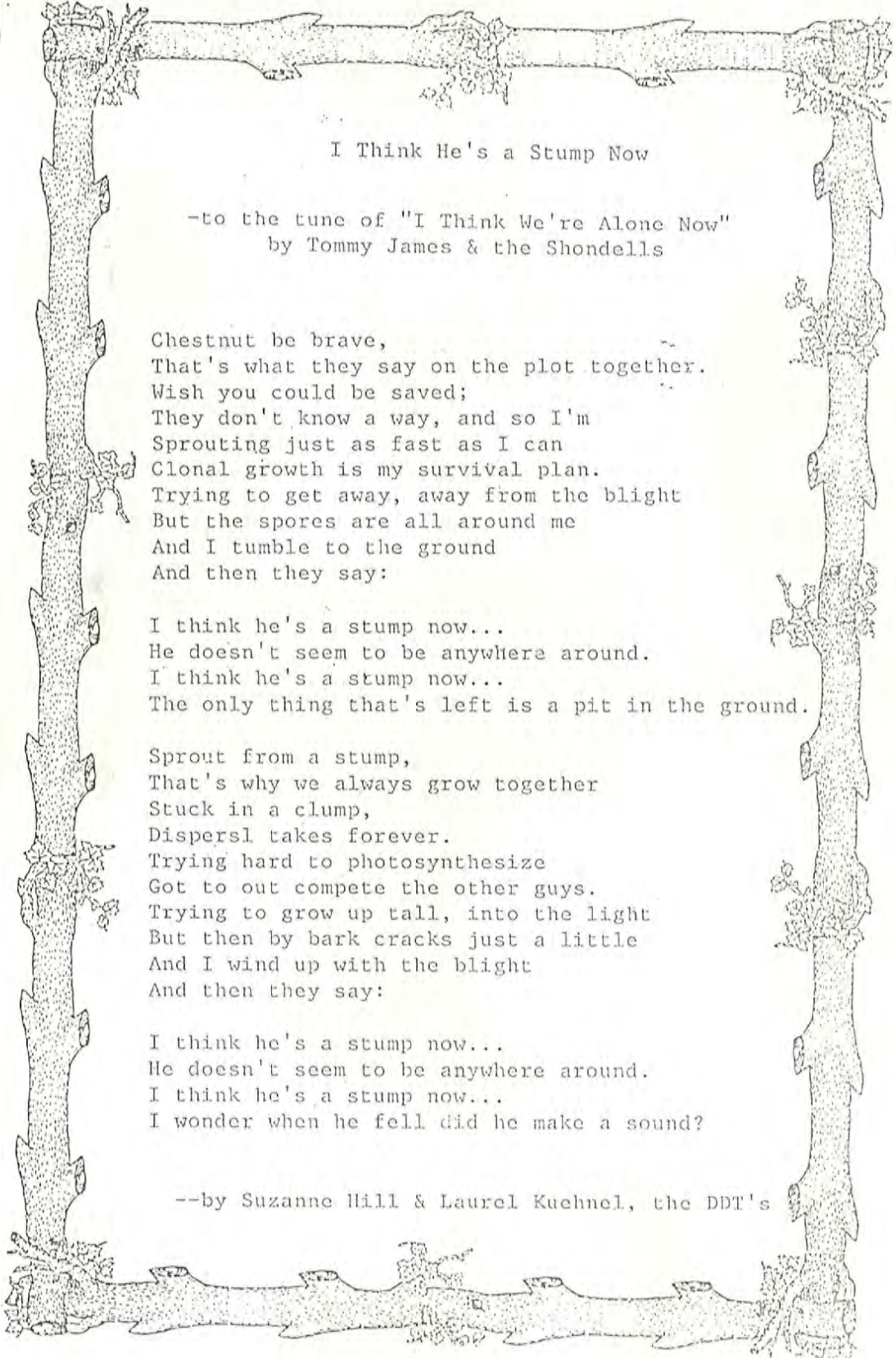
BILL HARK, STUDENT



A BIG RATTLESNAKE YEAR!







I Think He's a Stump Now

-to the tune of "I Think We're Alone Now"
by Tommy James & the Shondells

Chestnut be brave,
That's what they say on the plot together.
Wish you could be saved;
They don't know a way, and so I'm
Sprouting just as fast as I can
Clonal growth is my survival plan.
Trying to get away, away from the blight
But the spores are all around me
And I tumble to the ground
And then they say:

I think he's a stump now...
He doesn't seem to be anywhere around.
I think he's a stump now...
The only thing that's left is a pit in the ground.

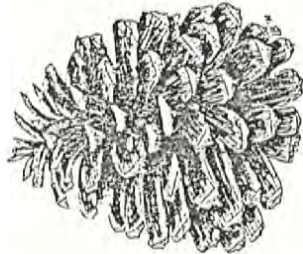
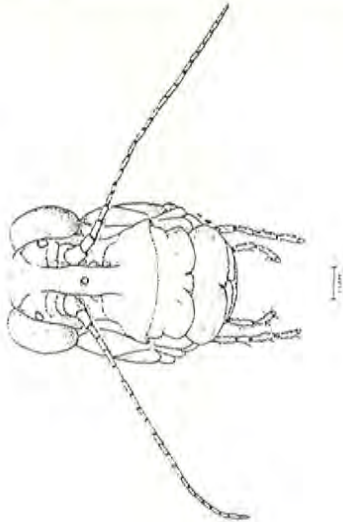
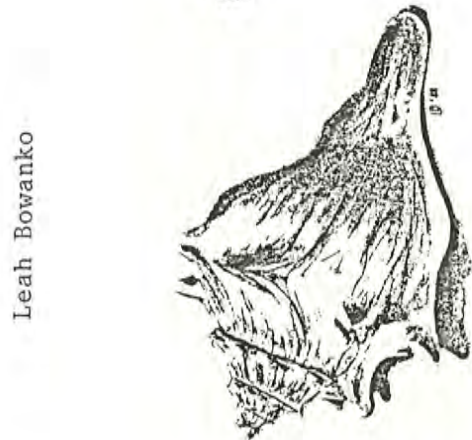
Sprout from a stump,
That's why we always grow together
Stuck in a clump,
Dispersal takes forever.
Trying hard to photosynthesize
Got to out compete the other guys.
Trying to grow up tall, into the light
But then by bark cracks just a little
And I wind up with the blight
And then they say:

I think he's a stump now...
He doesn't seem to be anywhere around.
I think he's a stump now...
I wonder when he fell did he make a sound?

--by Suzanne Hill & Laurel Kuehnelt, the DDT's

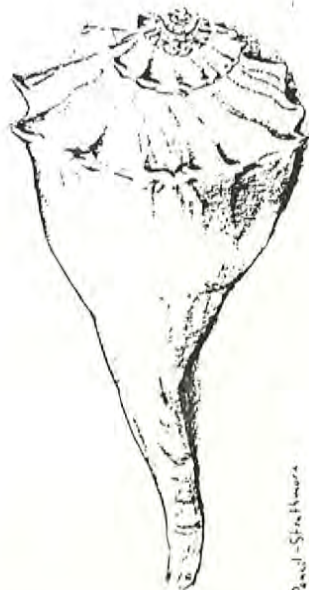
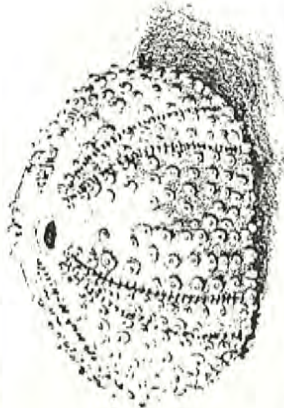
Illustration

Leah Bowanko



Sketchbook

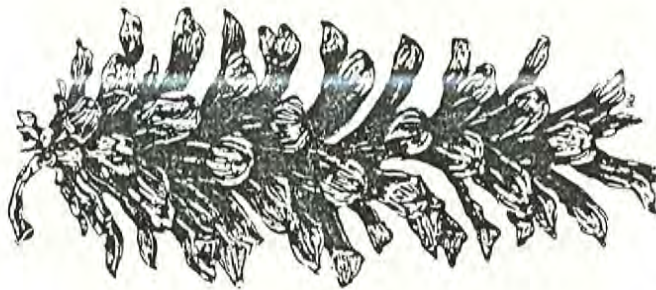
Heidi Kruszewski



Paul Strathmore



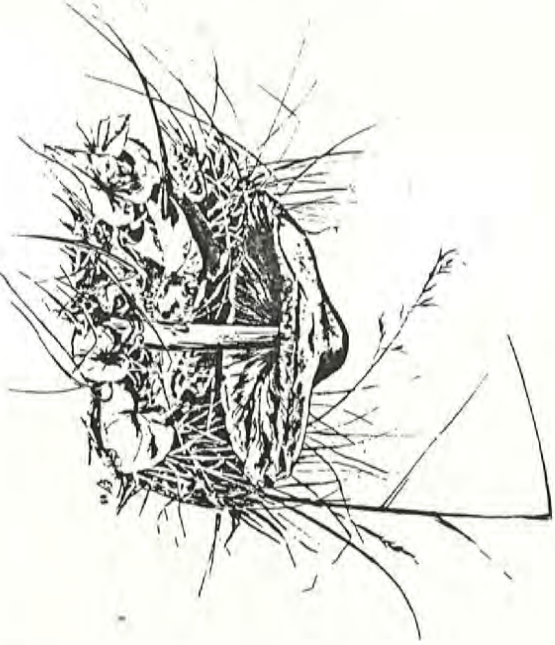
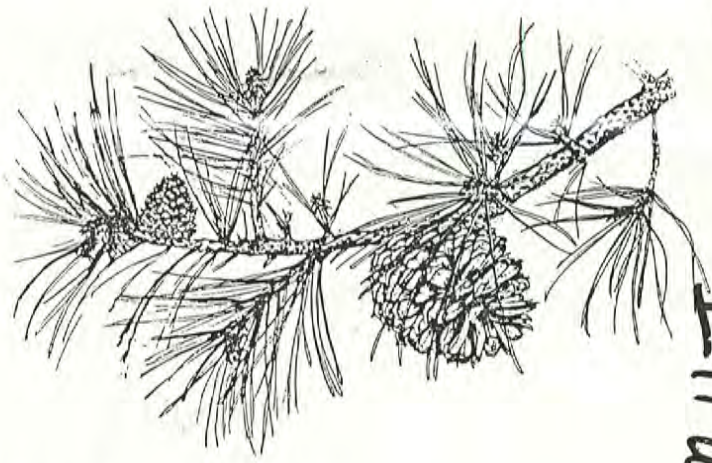
Carbor Dust - Beehive



Sketches board

Illustration

Esta Johnston

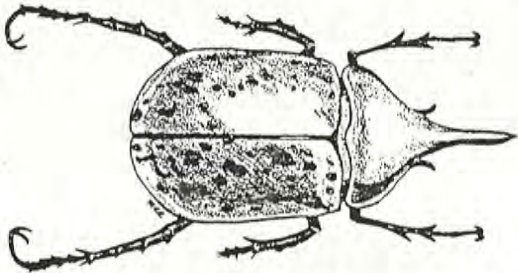


Sketchbook

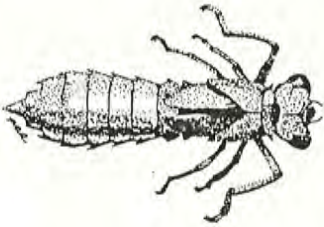


Gray Fox *Urocyon cinereoargenteus*

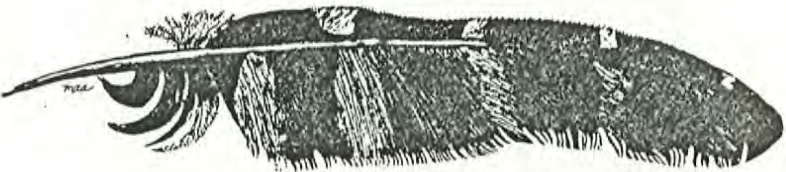
100 mm



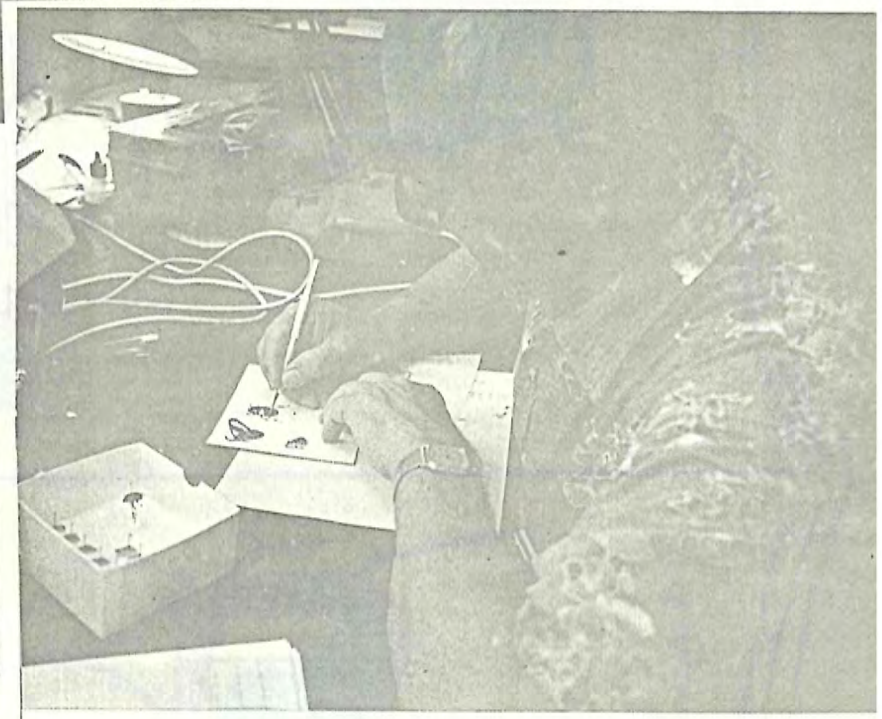
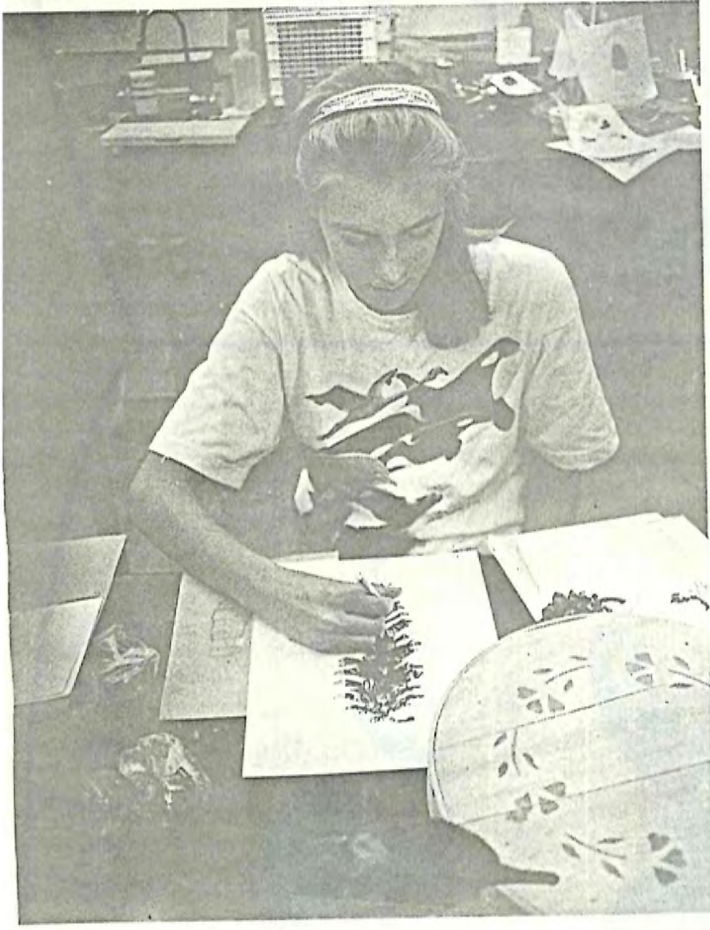
1 cm



1 cm

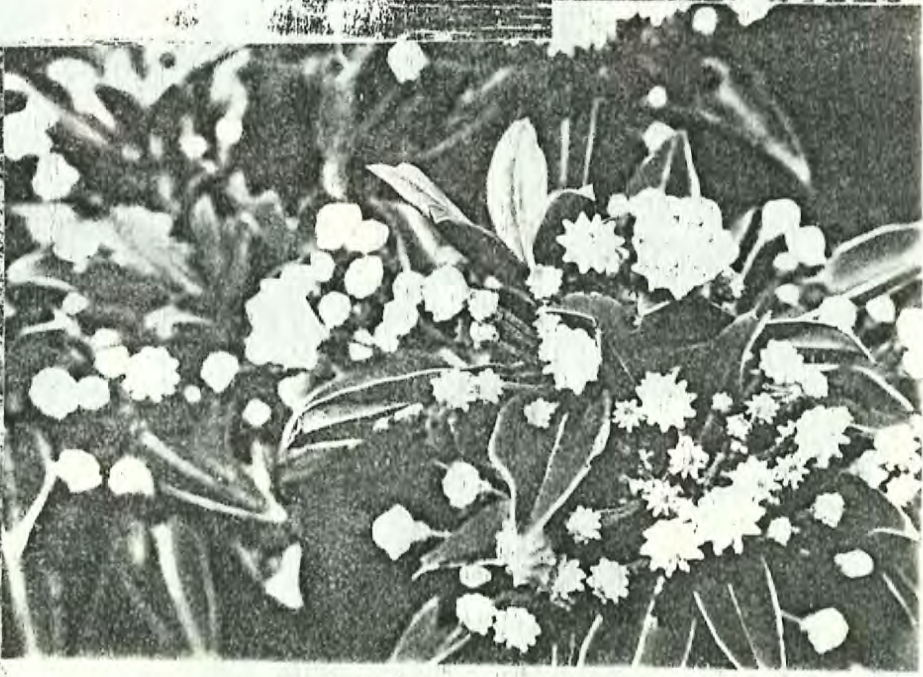


Mary Ann Angleberger

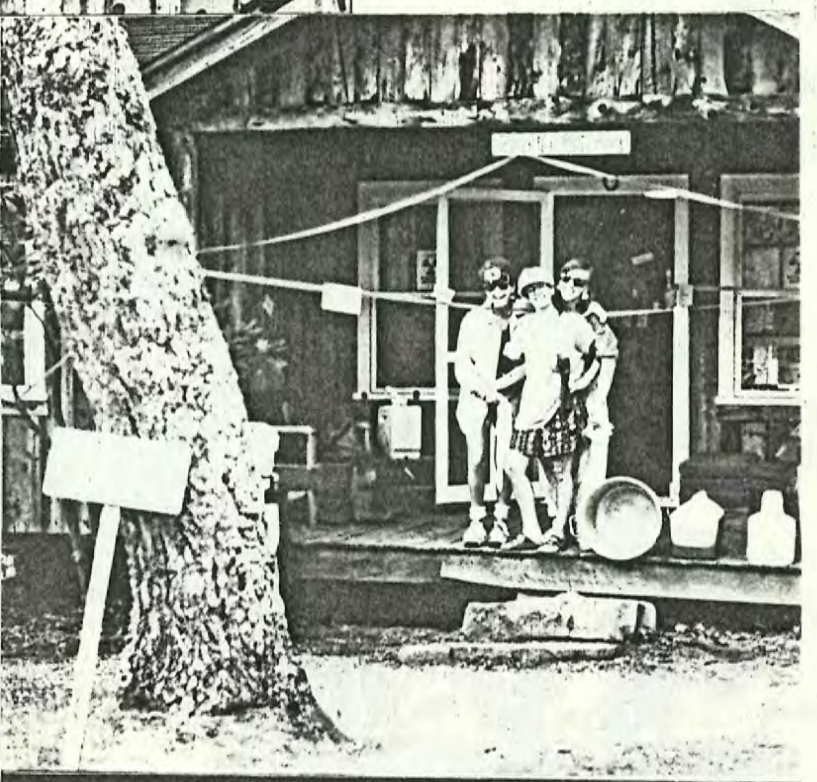
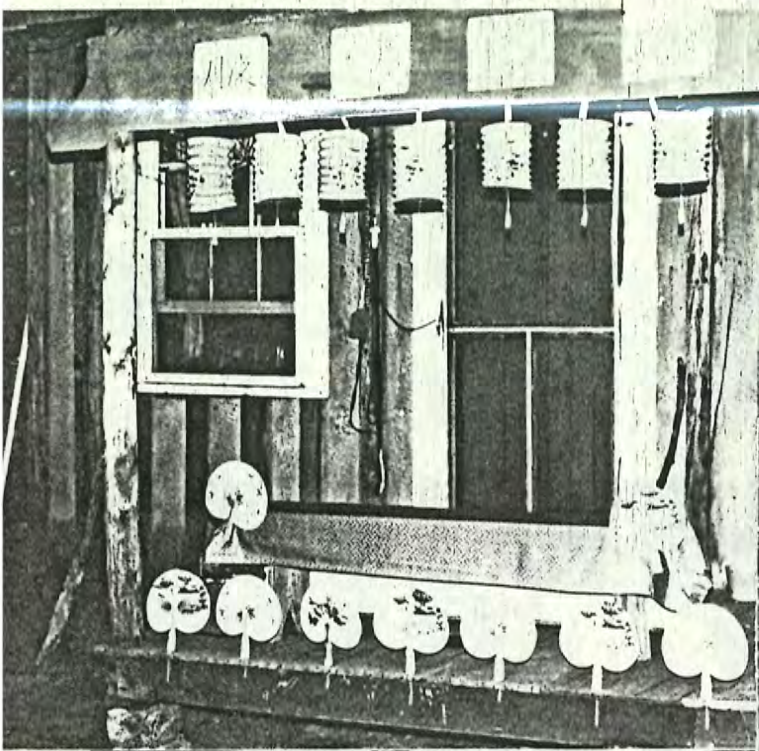


SCIENTIFIC ILLUSTRATION

Mary Ann Angleberger, Leah Bowanko,
Heidi Kruszewski, George Byers,
Esta Johnston



TEAHOUSE OF
THE JULY MOON

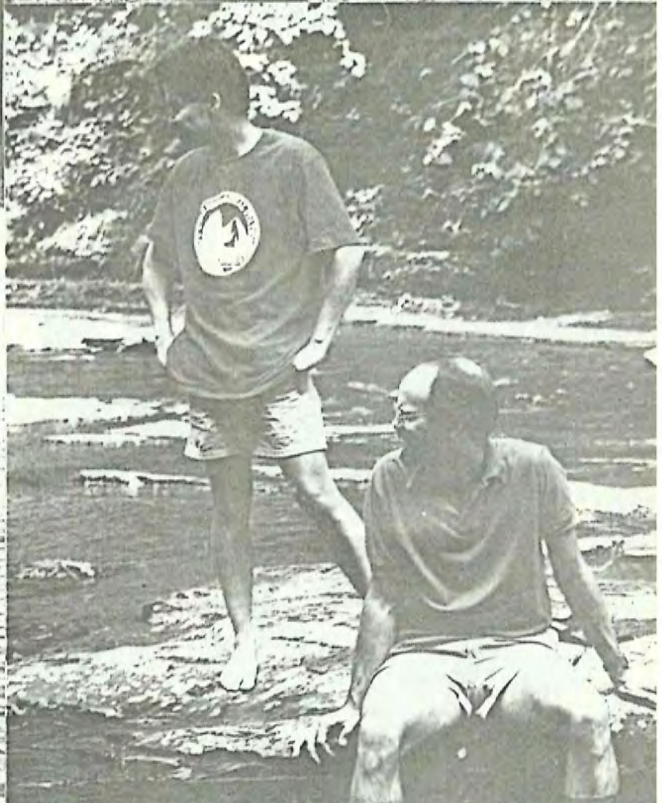


TOXIC WASTE



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MT. LAKE DIRECTORY - SUMMER 1988

ADKISSON, Karen	21 High Meadow Drive Blacksburg, Va 24060	DNA Workshop
ALEXANDER, Dave & Helen Diane (20 mos)	Dept. of Botany & Systematics Univ. of Kansas Lawrence, KS 66045	Research (Hentz-Mohr)
ANGLEBERGER, Wayne & Mary Ann Tom (17)	Rt. 1 Box 152 Mt. Solon, VA 22843	Business Manager and Secretary (Gattinger)
ANTONOVICS, Janis	Dept. of Botany Duke University Durham, NC 27706	PLANT POPULATION BIOLOGY (Michaux)
ARGUIN, Paul	600 20th St. NW # 708 Washington, DC 20052	Junco research assist. (Audubon)
BAND, Retta	Zoology Dept. Michigan State University East Lansing, MI 48824	DNA Workshop & Research (Laing single)
BERGSTEN, Kelvin	321 Charles St. Blacksburg, Va 24060	KITCHEN MANAGER
BIXLER, Andrea	3912 Chenoweth Run Jeffersontown, KY 40299	<u>Silene</u> research assist: (Chapman)
BOWANKO, Leah	2109 N. Kenilworth St. Arlington, VA 22205	ENTOMOLOGY/SCI. ILLUS. (Elliott)
BOWYER, Walter	Dept. of Chemistry Hobart & Wm. Smith College Geneva, NY 14456	Entomology (Laing West)
BREDEN, Felix	105 Tucker Hall Univ. of Missouri Columbia, MO 65211	Research (Holbrook)
BURNS, Caroline	1914 Stadium Rd. Charlottesville, VA 22903	Entomology (Elliott)
BYERS, George	Dept. of Entomology University of Kansas Lawrence, KS 66045	ENTOMOLOGY (Laing Center)
CICIRELLO, Donna	2420 S. 15th St. Philadelphia, PA 19145	Mammal research assist.
COLE, Blaine	Dept. of Biology Univ. of Virginia Charlottesville, VA 22901	Research (ants)

DENNIS, Panzie	P.O. Box 174 Riner, VA 24149	Head cook
ELDER, John	Rt. 1, Box 448 Elliston, VA 24087	DNA Workshop
FAJEN, Ava	105 Edgewood Ave. Apt. B Columbia, MO 65203	Quant. Methods & research (Laing single)
FELBER, Francois & Martine	Dept. of Botany Duke University Durham, NC 27706	Research (Laing South)
FOSTER, Lance	1404 Alumni Place Lawrence, KS 66644	Plant Population Biology (Deschweinitz)
GERACHIS, Andrew	814-C Tunlaw Place Charlottesville, VA 22903	Ecolog. Genetics (Audubon)
GILLESPIE, John	169 Rugby Rd. Charlottesville, VA 22903	Nat. Hist. So. App. (Deschweinitz)
GOOCH, Jim	Biology Dept. Juniata College Huntingdon, PA 16652	DNA Workshop (Laing West)
HARK, Bill	4317 Southwood Drive Alexandria, VA 22309	Entomology (Deschweinitz)
HARRIS, Patricia	243 Bio Sci Bldg Duke University Durham, NC 27706	Quant. Methods (Chapman)
HILL, Suzanne	7800 E. Terrace View Apts Blacksburg, VA 24060	Research assist. (Chapman)
HLAVATY, Deb	Biology Dept. Univ. of Virginia Charlottesville, VA 22901	Research (Laing single)
JOHNSTON, Dave & Esta	5219 Concordia St. Fairfax, VA 22032	SCIENTIFIC ILLUSTRATION
JONES, Dedra	P.O. 195 Pembroke, VA 24136	Cook
KEMPTON, Bernadette	1204 Port Republic Rd. Harrisonburg, VA 22801	Nat. Hist. So. App. (Elliott)
KEEN, Hubert	Dept. of Biolog. Sci. SUNY- Cortland Cortland, NY 13045	HERPETOLOGY (Harriot)

KETTERSON, Ellen	Dept. of Biology Indiana University Jordan Hall 138 Bloomington, IN 47405	Research (Juncos) (Burns)
KUEHNEL, Laurel	1727 Donlee Drive Blacksburg, VA 24060	Research assist. (Chapman)
KRUSZEWSKI, Heidi	623 A Progress St. Blacksburg, VA 24060	Scientific Illus.
LANFORD, Les	P.O. Box 1102 Amherst, VA 24521	Herpetology Research (Deschweinitz)
LEMON, Kathy	6831 SW 52nd St. Miami, FL 33155	Ecolog. Genetics (Laing single)
LIN, Kenneth	4325 Greendell Road Chesapeake, VA 23321	Herpetology/ <u>Silene</u> res. assis (Audubon)
MC CAULEY, David	Dept. of Biology Vanderbilt Univ. Nashville, TN 37235	Research (Milkweed beetles) (Mitchell)
MC CROSKEY, Julian	MLBS Rt. 1 Pembroke, VA 24136	CARETAKER
MC PHERSON, Bradley & Kay	Biology Dept. Centenary College Shreveport, LA 71104	DNA Workshop (Laing West)
MARSCHALL, Libby	Dept. of Zoology North Carolina State Univ. Raleigh, NC 27695	Research (Stephen Elliott)
MALTBY, Arlan	Dept. of Systematics & Ecology Univ. of Kansas Lawrence, Ks 66045	Research assist. (<u>Silene</u>) (DeSchweinitz)
MATHIS, Alicia	Dept. of Biology Box 42451 Univ. of S.W. Louisiana Lafayette, LA 70504	Research (Salamanders) (Laing single)
MATTHEWS, Johnna	1632 Engel Rd. Lawrence, KS 66045	Alexander babysitter (Hentz-Mohr)
MEREDITH, Mary Helen	Rt. 1, Box 132 Pembroke, VA 24136	Cook
MILLER, Jim	Rt. 4, Box 946 South Boston, VA 24592	Quantitative Methods (Audubon)
MURRAY, Jim Willy (17)	Dept. of Biology Univ. of Virginia Charlottesville, VA 22901	DIRECTOR (Reed)

NOLAN, Val	Dept. of Biology Indiana Univ. Bloomington, IN 47405	Research (Juncos) (Burns)
PARKER, Jess	Smithsonian Envir. Res. Ctr. P.O. Box 28 Edgewater, MD 21037	Research (Catesby)
PIERCE, Joanne	Rt. 2, Box 869 Evington, VA 24550	Nat. Hist. So. App. Bartram (Laundry)
RAGLAND, Marie	2 Forest Court Warrenton, VA 22186	Research assist. (Juncos) (Stephen Elliott)
RAINES, Judy	Rt. 1, Box 210 Newport, VA 24128	Cook
REAL, Les	Dept. of Zoology North Carolina State University Raleigh, NC 27695	PLANT POPULATION BIOLOGY (Maphis)
RESETARITS, Bill & Cheryl	Dept. of Zoology Duke University Durham, NC 27606	Research & Librarian (LeConte)
ROCHE, Bernie	Dept. of Zoology Box 7617 North Carolina State Univ. Raleigh, NC 27695	Research assist. (<u>Silene</u>) (Stephen Elliott)
ROWE, Lise	1213-5 Wertland St. Charlottesville, VA 22903	Quant. Methods/Entomology (Chapman)
SHARP, Edward	1113 Franklin Rd., SW #3 Roanoke, VA 24016	DNA Workshop (Laing West)
SHELTON, Phil	Nat. Sci. Dept. Clinch Valley College Wise, VA 24293	NAT. HIST. OF SO. APP. (Schoew)
SKAGGS, Sean	11123 Leesburg Pike Herndon, Va 22070	Plant Population/Ent. Res (Deschweinitz)
STEVERS, Alan & Betty	624 Mt. Lake Ave. Pearisburg, VA 24134	Head cook & cook
STINE, Colin & Jeananne Maryruth (3) Sarabeth (under 1)	933 Taylor Bldg. John Hopkins Univ. 720 Rutland Ave. Baltimore, MD 21205	DNA WORKSHOP (Banister)
SWANK, Ann	3434 Ashmeade Drive Roanoke, VA 24018	Quant. Methods (Laing single)
SWARTLEY, Keith	N. Anson Rd. Stanfordville, NY 12581	Research assist. (Gatesby)
TAYLOR, Andy & Betsy Laura (1½)	Dept. of Zoology 1735 Nell Ave. Columbus, OH 43210	QUANTITATIVE METHODS (Schoew)

UY, Rob	107 Shamrock Rd Charlottesville, VA 22903	Quant. Methods/ <u>Silene</u> res (Audubon) assist.
WAIT, Alexander	20½ Rorbach Lane Geneseo, NY 14454	Quant. Methods (Audubon)
WERTH, Charlie	Dept. of Biolog. Sci. Texas Tech Univ. Lubbock, TX 79409	Research
WELBORN, Lisa	508 Louisiana Lawrence, KS 66044	Research assist. (Milkweed beetle) (Elliott)
WEST, Dave & Lindsay Susan	Dept. of Biology Virginia Tech Blacksburg, VA 24061	ECOLOGICAL GENETICS (Clayton)
WHITLOCK, Mike	206 B 31st Ave. N Nashville, TN 37203	Research (Beetles) (Deschweinitz)
WIENER, Pam	Dept. of Bio. Sci. Stanford University Stanford, CA 94305	Plant Population Biology (Chapman)
WILBUR, Henry & Becky Helen (5) Lindsay (2)	Dept. of Zoology Duke University Durham, NC 27706	QUANTITATIVE METHODS (Michaux)
WOLF, Licia	Dept. of Biology Indiana Univ. Bloomington, IN 47505	Research (Juncos) (Laing North)
WOLFF, Jerry	Dept. of Biology Villanova Univ. Villanova, PA 19085	Research (Mammals) (Maphis)
ZIEGENFUS, Charles "Zig"	Math & Comp. Sci. Dept. James Madison University Harrisonburg, VA 22801	Research (Juncos) (Laing NW)
ZIRKLE, Anne	Rt. 1, Box 12-B Critz, VA 24082	Nat. Hist. So. App. Bartram (Laundry)



[Mt. Lakers] we come together
Singing all as one
We have shared another season
[Study], play and fun.
Summer days will soon be over
Soon the autumn starts
And [today] the memories whisper
Softly in our hearts.

Day time, night time, any hour
Weather[or whether] rain or shine
Games, lectures, dogs and music
Happily combine.

Not a stress or strain is found here
For it must be said
Here at [Mt. Lake] you'll gladly
Fill stomach, heart, and head.

For our heads require value
Some it's fine cuisine--
But the heart needs a vacation
Where no cares are seen.

So let's join in just one last chorus
[Students], staff and guests
What we've shared won't be forgotten
Old friends are the best!

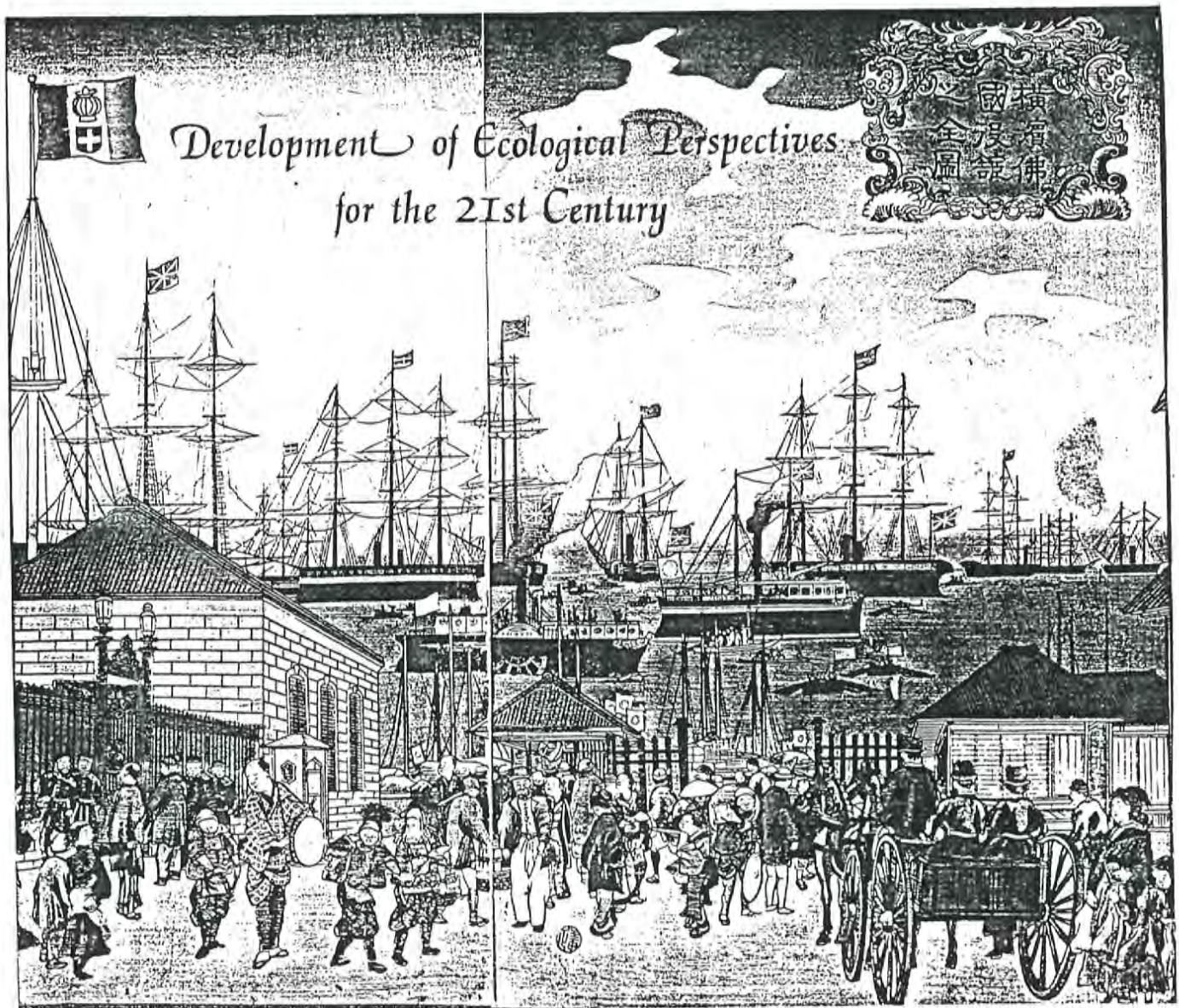
Join hands, hearts and voices
Voices, hearts, and hands--
At [Mt. Lake] the friendships last
Long as the mountain stands!



--Dirty Dancing



V International Congress of Ecology



August 23-30, 1990 — Yokohama, Japan

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Scientists planning to attend the Congress are requested to return the Provisional Application Form to the following address. This does not involve any obligation to attend; it will merely help to ensure receipt of the Second Circular.

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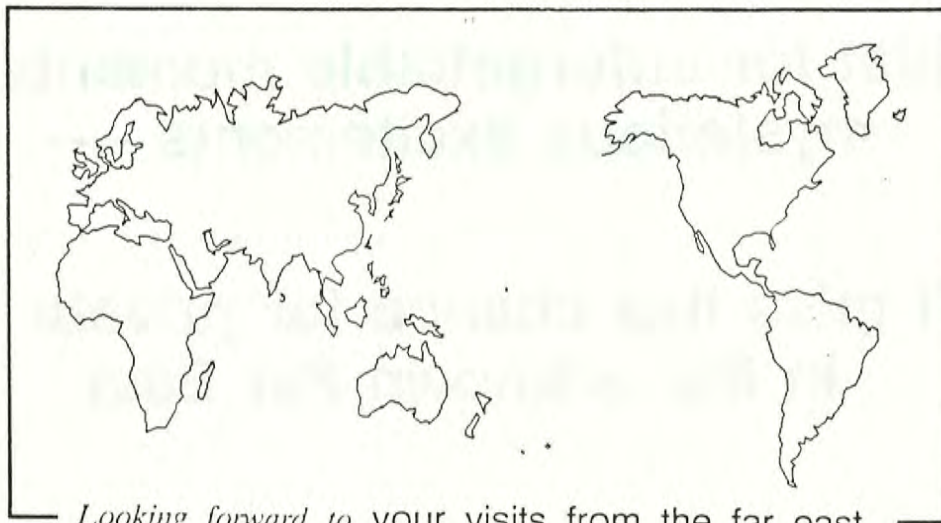
Main office: 345-179 Fujima, Kawagoe
Saitama 356, Japan

phone: 0492-44-7789 (call Takahiro)

Office in Tokyo: Department of Biology
Tokyo Metropolitan University
Fukazawa, Setagaya
Tokyo 158, Japan

phone: 03-717-0111 ex. 3521 (call Asami)

Sorry, no Toll Free



Looking forward to your visits from the far east

MOUNTAIN LAKE BIOLOGICAL STATION

COURSE SCHEDULE

SUMMER 1989

1st Term: 11 June - 15 July

Plant Taxonomy

Spencer Tomb, Kansas State University

Ornithology

James R. Karr, Virginia Tech

Behavioral Ecology

Jerry O. Wolff, Villanova University

Workshop in Allozyme Techniques

Charles T. Werth, Texas Tech University

2nd Term: 16 July - 19 August

Community Ecology

Joseph Travis, Florida State University

Henry M. Wilbur, Duke University

Mammalogy

Jack A. Cranford, Virginia Tech

Workshop in Mitochondrial DNA (16 July - 29 July)

O. Colin Stine, Johns Hopkins University

Workshop in Molecular Techniques for Field Biology (30 July - 19 August)

Daniel J. Burke, University of Virginia

Michael P. Timko, University of Virginia