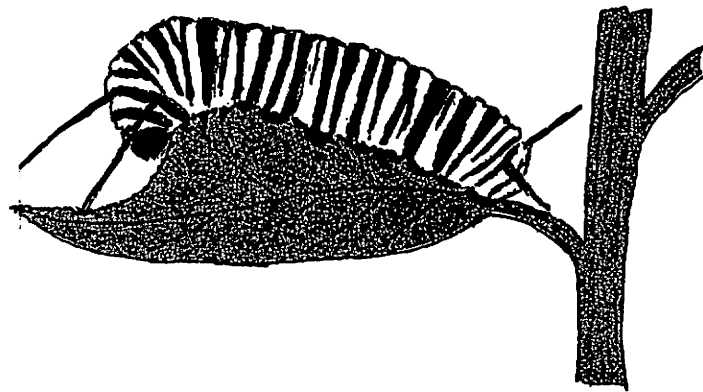

INSECT MIGRATION STUDIES

Volume 25 1988



Annual Report

UNIVERSITY OF TORONTO . SCARBOROUGH CAMPUS

Annual Report to Research Associates

Insect Migration Association
1988

UNIVERSITY OF TORONTO SCARBOROUGH CAMPUS
Scarborough Ontario Canada M1C 1A4

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To the Associates
From
Norah and Fred Urquhart

It is fifty years ago that the first alar tags were placed on the wings of migrant monarch butterflies, a method of following the movements of a migrating butterfly that now seems so simple. But it took a few years of trials and failures before arriving at the present procedure. We refer you to the book, The Monarch Butterfly: International Traveller, for the history of the present tagging system and the establishment of our group of Research Associates.

You may have pondered the question: "Why did it take so long to obtain meaningful results?" The answer is fairly simple.

There are many types of research projects that take years to obtain meaningful data. There are those involving nature that allows examination only once each year - unlike laboratory research that can be carried out continuously throughout the year. To study the annual movements of an animal we can only "push the button" once during the fall movement and once during the spring movement. Hence, this type of research requires much patience and a great deal of dedication. Organizations that present research grants are loath to finance such long-range projects, and hence institutions prefer research in which there is a chance of some success in a limited time. Graduate students at the universities and colleges prefer research problems that can produce meaningful results within a few years allowing them to obtain post-graduate degrees.

The studies of the movements of insects fails to excite much interest on the part of those entrusted with giving out research grants. In our last attempt to obtain financial support from our Canadian granting agency, we were informed that "we are not impressed with your project." Fortunately there are agencies, such as the Committee on Research and Exploration of the National Geographic Society, that take a much wider interest in natural history research, whether it is the distribution of a small snail or a gorilla. Thanks to the generosity of such institutions and their dedication to understanding every aspect of our planet, those projects that must be carried on for a lengthy period of time are being carried out. Over a period of a number of years the Committee on Research of the National Geographic Society made it possible to carry out many field explorations as well as covering incidental expenses. It was as a result of this financial support that rapid progress towards the solution of "where do the monarch butterflies go in their fall migration?" was made possible.

There are many individuals who say: "What value is there in such research?" Who cares where the monarch butterflies go and how they get there?" "Who cares if a species of bird, mammal or butterfly becomes extinct?" But, fortunately, there are many of us who do care and we want to know as much as possible about the animals on our planet so that we may do all we can towards their survival. That is why we as a group of Research Associates have banded together to learn all we can about the monarch butterfly so that it will never

be placed on the list of endangered species.

When I was employed by the Royal Ontario Museum as Curator of Insects in which position I carried out studies on the taxonomy, ecology and distribution of a group of insects belonging to the order Orthoptera (grasshoppers and crickets), I carried out my interest in the monarch butterfly as a hobby rather than a research project. Each year the Director asked for a statement of what each member of the staff had been doing so that he could submit a report to the government. One year I suggested that a statement be included concerning the results I had obtained in following the migration of the monarch butterfly to which he responded in rather disapproving tone: "What would the government think of a staff member spending his time placing pieces of paper on butterflies' wings?" But, I continued to carry out my monarch butterfly hobby as well as my research on the Orthoptera. Naturally, I received no financial support for field studies - what little we were able to do was at our own expense. And so the study continued on a rather small scale year after year. We tagged thousands of migrants collected in the field and on overnight roosting trees together with many thousand reared in cages. We made copious notes on the migratory habits and carried out a few rather simple experiments. The research was, of course, carried out mostly during the summer months since I had no facility for rearing specimens during the winter. I did, however, obtain many hundreds of specimens from a colleague living in California which allowed me to carry out a few limited experiments and the examination of the presence of ova in the females and sperm cells in the males. I was also able to carry out experiments and observations on the spring mating behaviour.

There is a limit to what one can accomplish in a project requiring the marking of migrant monarchs. In order to assure the recapture of a significant number of migrants it is necessary to tag many thousands since the recovery of meaningful tagged specimens amounts to .002%. Obviously we needed help. Norah got the bright idea of writing an article in Nature, published by the American Museum of Natural History explaining the nature of the project and what we wished to accomplish. The Editor was most sympathetic to our needs and added a footnote to the article requesting volunteers to assist us. Thus our group of Research Associates was formed which grew in numbers over the years involving over 3000 individuals living in various parts of Canada and the United States.

I left the museum to accept the position of Professor of Zoology and Norah the position of Research Assistant on the staff of the University of Toronto. I dropped the study of the Orthoptera and Norah and I dedicated ourselves to the study of the monarch butterfly. We were given a large laboratory on the Scarborough Campus equipped with all the necessary equipment to rear and study the various aspects of the life of the monarch butterfly. Norah was given her own private office also fully equipped for filing information and carrying out correspondence. We were ready to embark on a full scale investigation into the many fascinating secrets of this fascinating little butterfly.

With the valuable assistance of the dedicated Research Associates we were able to follow with great accuracy the movements of the monarch across the continent. We were also able to expand our hor-

izons to distant islands in the Atlantic and Pacific. Thus, with a common goal and with dedication to the search year after year, pushing the button once in the fall and once in the spring, we have accumulated a knowledge of one of nature's most interesting and beautiful butterflies. We, as a dedicated group of Research Associates can take credit in what has been accomplished, not only in following the migration but also in bringing this unique phenomenon to the attention of the public and particularly to the Mexicans who now take great pride in protecting this seemingly frail little traveller.

In addition to the research efforts of the Associates, many have used the program most successfully in teaching others about the beauties and mysteries of our natural world. Many have used the project to emphasize the importance of conservation as it applies to all living creatures, especially insects. Many of our young associates started their careers with the study of the monarch butterfly encouraged by our Research Associates, teachers and parents.

So, year after year we continue our research. Some day one of your tagged monarchs, tagged in your back yard, may be recaptured the following year having made the complete round trip returning to the vicinity of its birth. Some day we may know where the migrants from the northeastern parts of the continent spend the winter for which we have as yet no recapture data. Some day we will know where the migrants that cross into Yucatan, Mexico, spend the winter months and where they go on their return trip during the spring migration. Some day we may know the destination of the aberrant migrants that have strayed off to the distant Antilles.

So, year after year, we delve ever deeper and deeper into the life of the monarch butterfly, international traveller.

MEMBERSHIP RENEWAL FORM: 1988-1989

Please fill out the following form and send to:

Professor F. A. Urquhart,
Scarborough Campus,
University of Toronto,
1265 Military Trail,
Scarborough, Ontario, Canada: M1C 1A4.

*Please
send report
this sheet*

Based on present costs of such items as postal charges, stationery supplies, translations, printing and preparation of the Insect Migration Studies report, secretarial assistance, etc. a donation to the research fund - held in trust by the University of Toronto - of \$20.00 for an individual and \$25.00 for group participation (schools, clubs, camps, etc.) is suggested. This research is carried out on a purely voluntary arrangement; it is not supported by any outside granting agencies.

Name: _____

Address: _____

: Zip Code _____

If you live in a rural district please indicate the nearest town or city so that we may record release-recapture lines on the migration map. Nearest City or Town: _____

Occupation: _____

Since the Monarch butterfly has a wide appeal, it is of interest to members of the IMA to have a record of occupation. It is also of interest in popular articles.

Age if under 18: _____

Make donations payable to: Insect Migration Studies: Amount \$ _____

Number of tags required _____

Serial numbers of tags still on hand _____

When did you receive a copy of this report? _____

Please order altar tags prior to July 1st since we are usually on field studies and may not be able to fulfill your order until September.

We look forward to your continued participation.

Date: _____

Increase in Suggested Donation

During the past five years there has been considerable increase in many items involved in carrying out the research on the monarch butterfly such as" Postage, Extra clerical assistance; supplies and sundries; production of the Insect Migration Studies, etc. We are therefore suggesting an increase as indicated in the renewal form.

It is understood that the donation is not a fee and hence contributions to maintain the study may be of any amount commensurate with an associates financial situation.

The Monarch Butterfly: International Traveller

Copies of the book may be purchased directly from the publisher or, on request, from your local book store (see brochure).

I would be pleased to autograph the book you purchase. Please include an amount of \$2.00 U.S. to cover mailing charges when you send the book to me.

If you wish (in order to reduce the cost of mailing) I can purchase a copy for you, autograph it and send it to you. Please include a cheque for \$40.00 U.S. to cover purchase of book and postal charges. This offer applies only to our associates.

The supply of copies at \$35.00 is exhausted. Fortunately, many of you were able to take advantage of this reduced cost.

Butterfly Gardening and Conservation

Once again we are indebted to Dennis Figg for adding interesting items to our annual report. The species of butterflies illustrated in the booklet have a wide distribution and hence will be helpful in identifying those you see while in pursuit of the monarch butterflies.

More Milkweed Plants

As discussed at length in the last report, there is considerable need for more milkweed plants in areas where they have been annihilated by roadways, buildings and the indiscriminate use of herbicides. Although the monarch butterfly is not on an endangered list many of the local populations are being drastically reduced as a result of the absence of the larval food plant.

We have suggested that schools and organizations carry out a planting project. Schools can have milkweed gardens; associates can add milkweed to their flower gardens; we can encourage others to grow milkweed in vacant lots or in their gardens. Students and naturalists can learn a great deal about nature by observing what takes place around a cluster of milkweed. Its scented blossoms attract a great

variety of insects; its method of cross-pollination is quite remarkable. A study of the milkweed plant introduces one to the intricate interdependence of plants and insects.

We have suggested that you gather the seeds in the fall from the local milkweed plants and use them to be scattered in areas devoid of milkweed or plant them in your garden. If you wish to obtain a quick growth of milkweed, dig up the roots, particularly those of Asclepias syriaca, and plant the vegetative centers (nodules where embryo plants can grow,, similar to the eyes of a potato).

If you or your organization or school carries out a program of propagating milkweed plants please write and tell us about it so that we may include such reports in our next annual report.

Population Fluctuations

As described in detail in The Monarch Butterfly: International Traveller, the populations of the monarch butterfly varies, over a period of time from marked scarcity (trough) to marked abundance (crest). This is due, for the main part, to an epidemic (epizootic) of a polyhedrosis virus. For reasons unknown, the first indication of a possible virus epizootic appears first in the midwest. We have received reports of the virus from Minnesota which lies along a main migratory stream. Hence, although we do not anticipate a trough next summer it would appear that such might occur in the summer of 1989.

In addition to reports of the virus we have received reports of scarcity from the following: Emily Pendleton of Shelby County, Alabama; Cathy Crossett of Faith, North Carolina; Dionne Miner of Strongville, Ohio; Mailyn and Jenny Ortt, of Marietta, Ohio; Amy Thompson of Stoneboro, Pennsylvania; Linda and Gary Gimbel of Warren, Ohio; Donna Kessler of Audubon, Iowa; Betsy Briggs of Marshfield Hills, Massachusetts; Emily Pendleton of Shelby County, Alabama; Dennis Hahn of Bloomington, Minnesota; Wendy Nolin of Sunapee, New Hampshire; Molly Monica of Berkeley Heights, New Jersey.

In our area in Ontario we experienced a considerable drop in population. There were only a few widely scattered individuals on our regular overnight roosting trees where two years ago there were clusters of several thousands; nor were we able to find any larvae on our milkweed patch and only twelve individuals were seen visiting our flowers. This scarcity in Ontario was corroborated by Ruth Milani of Meaford and Helen Zimmerman of Vineland Station. However, Don Davis, one of our most enthusiastic taggers, was able to collect and alar tag over three thousand migrants at Presquile in Prince Edward County also in Ontario.

Faye Sutherland reported spraying with malathion in her area as an insecticide and, what was most interesting, Faye observed that although mating took place the females did not lay eggs. Margaret Schmitz of Fond du Lac, Wisconsin experienced larvae that did not develop properly, pupae that turned gray and when the adults emerged from the pupae the wings were wrinkled and unable to expand.

Such occurrences are undoubtedly the result of the use of insecticides within the area. Although such chemicals are designed to kill the insect pest nothing is known as to the effect of minute quantities of such chemicals on the lives of insects within the spray area. If you have noted such occurrences in your area we would appreciate your informing us so that we can report it in the next volume.

To Joan Senghas

As a result of the Editor including a footnote to Norah's article in Nature, published in 1952 requesting volunteers, twelve individuals responded. One of these, Joan Senghas, replied.

As a result of clearing out some of her drawers and cupboards, she came across some of the early newspaper clippings she had kept over all the years. She sent two of these two us, the paper yellow and crumbling with age and poor quality paper. We were able to obtain a readable copy of one of these articles which we are certain will be of interest to all our present associates.

You will note that Joan is using a pair of paper punch in order to produce a hole in the cleared area of the wing. This was done by holding a stiff piece of paper or light weight cardboard on the wing and punching the hole through the wing and cardboard. The latter was used so as to prevent damage to the wing while making the perforation. This was one of the early attempts at alar tagging. The hole was needed in order to glue the paper tag to itself through the hole since, at that time, we were using tags with a water soluble adhesive.

We wish to thank you for sending this historical piece of information about your activities and the methods which we used at that time.

Joan is still a member of our research group. It is to individuals such as Joan and others who have been associated with the project for many years that we have had such success in following the travels of the monarch butterfly.

For further information on the history of the tagging please consult The Monarch Butterfly: International Traveller.

Butterfly Chaser:

She Writes Notes on Wings



Detroit Times Photo

MRS. JOAN SENGHAS, 40, ABOUT TO PUNCTURE A BUTTERFLY'S WING

... she aids scientific nature study and has fun besides ...

By IRMENGARD POHRT

Mrs. Joan Senghas, 40, almost got shot in a Harrison Township farmer's corn patch and won fame in such farflung places as Toronto and Pittsburgh because she decided to put notes on butterflies' wings.

This seemingly daffy combination all comes about because Mrs. Senghas has had a life-long interest in nature study.

And although you and I never heard of notes on butterflies' wings and the farmer thought she wanted to steal his corn, Mrs. Senghas is actually assisting science and "having fun" doing it.

EXPLAINS WORK

She could probably explain it all best herself, and she did this Saturday while she performed the delicate operation of putting a note on the wing of another monarch butterfly. She said:

always been interested in nature study. I send data to

the Audubon Society and head a 4-H club nature study group. I also subscribe to Natural History Magazine.

"Well, I was reading the magazine in my living room one evening last summer and I saw this article from the Royal Ontario Museum of Zoology and Palaeontology in Toronto.

"The article said it's been known for a long time that Monarch butterflies are found as far north as the Hudson Bay area in the summer and as far south as the tip of Florida in the winter.

SEEKS VOLUNTEERS

"But the scientists were never quite sure whether the same butterflies traveled all the way from Hudson Bay to winter in Florida or whether each generation went so far and then another generation made another lap of the trip.

"They also didn't know just what line the butterflies traveled and wanted some volunteers to help them find out all about it. So I wrote to them."

By return mail Mrs. Senghas got some tiny printed tabs for attaching to butterflies' wings, an expensive hand operated paper puncher and instructions on what to do.

PUTS TABS ON WINGS

The instructions told her to make a small hole near the edge of a butterfly's wing (a painless operation to the butterfly) and to fold a small printer tab over the edge of the wing. The tabs, supplied by the museum, have glue on the back and when they're folded and moistened the two sides stick together through the tiny hole in the wing.

Then Mrs. Senghas set out in hot pursuit of the Monarch butterfly, which has a black border around the edge of its orange-brown wings.

The butterflies themselves weren't in season yet, she found out, so she decided to raise the caterpillars into butterflies and went to hunt for them on milkweed plants. This is what led her into the cornpatch, she said, explaining:

"The farther I went the more milkweed plants I saw."

FLIES TO PITTSBURGH

Eventually six caterpillars turned into butterflies on Sept. 4. Mrs. Senghas tabbed them and sent them on their way. Last week butterfly No. F-401, one of the six, turned up in a Pittsburgh lady's backyard.

The Pittsburgh lady called up a newspaper, which is how Mrs. Senghas became famous there, and she also notified the museum in Toronto.

The museum officials were delighted because only seven reports were received on the 3,000 butterflies tagged there last year, and the farthest any butterfly got was 40 miles away.

Today Mrs. Senghas is hunting again for butterflies in her backyard at 39611 Duluth Rd., Harrison Township, wondering what happened to No. F-401 after it was re-released in Pittsburgh and hoping that F-401 show up farther south to add to the world knowledge of Monarch butterfly.

Recapture Records of Monarch Butterflies for 1987

In 1987 we were fortunate in having an unusually high number of tagged monarch butterflies reported to us from many different places on the migratory routes and also at the overwintering sites in Mexico.

On reflection we have concluded that the unusually high number of reports is probably due to the increased awareness of people in the monarch butterfly due to a great deal of publicity and to the growing popularity of the research done by the associates who make up our Insect Migration Association. Another factor which contributed to the increased number of reports is the fact that Carlos Gottfried made field expeditions to the overwintering sites in Mexico where he reported seeing 11 tagged monarch butterflies. The site was also visited by Russell Fontaine who reported a tagged monarch butterfly.

<u>Name of Associate</u>	<u>Location of Tagging</u>	<u>Recaptured At</u>
Ron Austing	Dillsboro, Ind.	Ocampo, Mexico
Donald Davis	Presquile, Ontario	Anganguero, Mex.
" "	" "	El Rosario, Mich. Mex.
" "	" "	Mandeville, La.
" "	" "	East Point, Fla.
" "	" "	Copperhill, Tenn.
" "	" "	Pensacola, Fla.
" "	" "	Scarborough, Ont.
" "	" "	Andover, N.J.
" "	" "	Sierra Chincua, Mich. Mex.
" "	" "	Neptune Beach, Fla.
" "	" "	Sparta, N.J.
George Dombroske	Elmira, N.Y.	Elmira, N.Y.
Margaret Elliott	Muskegon, Mich.	Muskegon, Mich.
" "	Muskegon, Mich.	Muskegon, Mich.
Denis Hahn	Bloomington, Mn.	Ocampo, Mich. Mex.
" "	Bloomington, Mn.	Elgin, Tex.
Caroline Heller	Bronx, N.Y.	East Hampton, L.I., N.Y.
Jeffrey Heupel	Welcome, Mn.	Welcome, Mn.
Alta Horr	Gretna, Neb.	Anganguero, Mich. Mex.

Recaptures cont'd

Eva Kendrick	Sault Ste.Marie,Ont.	Au Train,Mich.
John Klein	Amelia, Oh.	Ocampo,Mich.Mex.
Lee Ann Landstrom	Osseo,Mn.	Anganguero,Mich.Mex.
*Jan Libbey	Clarion, Ia.	Belmond,Ia.
**Marion Lopina	Wauwatosa,Wi.	Diana, Tx.
Richard Mikula	Santa Cruz,Ca.	Santa Cruz,Ca.
" "	Nescopeck,Pa.	Ocampo,Mich.Mex.
Ruth Milani	Brampton,On.	Anganguero,Mich.Mex.
" "	Meaford,On.	Sierra Chincua,Mich.Mex.
Dick Nikolai	Appleton,Wi.	Neenah,Wi.
Dale Reichert	Hanover,Pa.	Hanover,Pa.
" "	York,Pa.	York,Pa.
Margaret Schmitz	Fond du Lac,Wi.	Lombard,Il.
Vince Shane	Bloomington,Mn.	Bloomington,Mn.
" "	Bloomington,Mn.	Bloomington,Mn.
***Doris Stifel	Maumee Bay State Park,Oh.	Clarion,Pa.
**** " "	" " " " "	Cerro Picacho,Mich.Mex.
Sonja Teraguchi	Cleveland,Oh.	McDowell County,W.Va.
Amy Thompson	Pittsburgh,Pa.	Pittsburgh,Pa.
Larry Totton	Granger,Ia.	Anganguero,Mich,Mex.

*indicates an aberrant flight NE.

** Butterfly was tagged in 1986 but was reported too late for I.M.S.1987

***indicates an aberrant flight E.S.E.

****Butterfly was tagged in 1985 and was reported in 1987.

Observations of the Fall Migration

The fall migration of monarch butterflies started at Presquile, Ontario as reported by Don Davis on September 14, 1987.

It was observed by Amanda Haycraft at Owatonna, Minnesota on September 30, 1987 and by Kerry Pado at Old Lyme, Connecticut on November 18, 1987.

Debbie Woythal saw large numbers of monarchs in mid-September at Leawood, Kansas, a month earlier than usual.

A major migration involving hundreds of thousands of monarchs crossing the Susquehanna River near Berwick, Pennsylvania was reported by Richard Mikula.

The first sighting of fall migrants was reported by Dorothy Yeager at Pearsall, Texas on October 10, 1987.

Publicity

We would like to thank the associates listed below who have sent us a variety of interesting excerpts from newspapers and magazines- some dealing with different aspects of the life of the monarch butterfly and some dealing with the activities of our associates in connection with this research. Many of the articles were accompanied by beautiful color illustrations. We feel that such articles demonstrate the continuing fascination that many people feel when contemplating this unique insect.

Articles were sent in by:

David and Cheryl Benyi, Ray Bracher, Joe Eddy Brown, Cecelia Burnett, Dale Clark, Don Davis, Douglas Gordner, Dennis Figg, Barbara Hagenson, Mary Henshall, Woody Keeney, Eva Kendrick, Virginia Kietzke, Richard Mikula, Helen Millward, Kerry Pado, Joan Senghas, Doris Stifel, Faye Sutherland, Pierre Warny, Audrey Wilson, Dorothy Yeager.

Excerpts were sent from the following publications:

The Columbus Despatch, The South Bend Tribune, Time, Life, Zoobooks, The Daily Tribune, The Dallas Morning News, Newscience, Nature Canada, Newscientist, Montreal Gazette, The New York Times, Readers Digest, Minneapolis-St. Paul Nature Almanac, Sunset, The Toronto Star, Science, Globe, Star, Missouri Conservationist, The Cedar Rapids Gazette, St. Petersburg Times, Quad-City Times, Nashua Telegraph, The Amicus Journal, Potpourri, Roll Call, Baraboo News Republic, The Pictorial, Hazleton Standard-Speaker, Midweeker, California Farmer, The Christian Science Monitor, Tree, The Idaho Statesman, Zoogoer, Science News, Sandusky Register, Times-Colonist, Austin American Statesman.

Royal Visit

His Royal Highness Prince Philip, Duke of Edinburgh made a special trip to Mexico to see the overwintering monarch butterflies at the Angangueo Locus. Prince Philip is President of the World Wildlife Foundation. We trust that this visit will mean added support to our conservation efforts to protect the monarch butterflies.

Sighting of Spring Migrants-1987

It is with excitement and anticipation that we wait for the return of the monarch butterflies to our particular area. At first we are misled by the sight of one of the early non-migrant butterflies or even the flight of a bird until finally we know that we are seeing the first monarch of the year. It is always a happy occasion and one that we celebrate wholeheartedly. We are pleased that some of you share this moment with us by reporting your first sighting of spring migrants. These are listed below in order of the date of observation :

Kerry Pado	Largo, Fla.	April 22/87
Debbie Knutson	Iron Mountain,Mi.	May 28/87
Ann Irwin	Fliret,Mi.	May 29/87
Terri Fuller	Fond du Lac, Wi.	May 30/87
Vince Shane	Bloomington,Mn.	May 31/87
Amanda Haycraft	Owatonna, Mn.	June 1/87
Lee Ann Landstrom	Osseo,Mn.	June 2/87
Mary Henshall	Nampa,Id.	June 3/87
Kerry Pado	Old Lyme,Ct.	June 5/87
Joan Senghas	Mount Clemens,Mi.	June 6/87
Don Davis	Scarborough,On.	June 11/87
Susan Carpenter	Montpelier,Vt.	June 15/87
Richard Mikula	Hazleton,Pa.	June 15/87
Russell & Leslie Siègel	Danbury,Ct.	July 19/87

The first eggs of monarch butterflies were reported as follows:

Vince Shane	Bloomington,Mn.	June 2/87
Kathy Miktuk	Panama.,N.Y.	June 7/87
Terri Fuller	Fond du Lac,Wi.	June 15/87

The first monarchs that emerged were reported as follows:

Marjorie Mathes	Nokomis,Fla.	April /87
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The first monarch butterflies tagged were reported as follows:

Keith Niedfeldt	Kasson,Mn.	June 7/87
Catherine O'Neil	Whitmore Lake,Mi.	July 1/87

Special Activities of Associates

We are always delighted to learn of the interesting variety of activities in which our associates participate as a spin-off of their involvement in the monarch butterfly research project. In promoting interest in the monarch butterfly our associates are carrying an important message about nature study and conservation.

We would like to thank the following who have reported their activities to us:

Mary Banet gave a lecture to grade 12 students in Calumet City, Illinois
Ray Bracher's lifelong interest in butterflies was the subject of an article in the South Bend(Indiana) Tribune.

Dick Buegler's group conducted a monarch butterfly walk at Great Kills-Gateway, Staten Island, N.Y.

Cecelia Burnet wrote an article on monarch butterflies for the Nevada(Iowa) Journal.

Mary Darning grew milkweed in her community garden at Wheeling, Illinois. Mary suggest that other associates might investigate the feasibility of community gardens in their areas for the propagation of milkweed.

Don Davis wrote a book review of "The Monarch Butterfly, International Traveler"- the review was published in the "Toronto Field Naturalist". Don also gave a lecture and slide presentation at the "Birds and Butterflies" weekend at Presquile, Ontario and lobbied the Ontario Government to supply more funds to Presquile Provincial Park where he does most of his tagging.

Dennis Figg wrote an article about monarch butterfly tagging for the "Missouri Conservationist".

Ann Firlit gave an hour long lecture to grade 4 students at Downer's Grove, Illinois.

Gary and Linda Gimbel cooperated in producing a program about monarch butterflies for the elementary schools, church groups, retired people and at the local environmental laboratory in Warren, Ohio. Gary took pictures of the monarch development and Linda presented the lectures.

Paul Kaplan and his students in Forestdale, Vermont helped to establish the monarch butterfly as the official butterfly for the state of Vermont.

Eva Kendrick's lectures about the monarch butterfly were so successful that she always had an attentive audience and sometimes received gifts from grateful students after her presentation.

Donna Kessler travelled around Audubon, Iowa to deliver talks on "the monarch story" at one church and several schools.

Thomas Marble and his family took monarch butterfly larvae to the school in Clyde, N.Y. so that the students could watch their development.

Pamela Meyer shared her knowledge and enthusiasm about the monarch butterfly at four schools in Trumbull, Connecticut.

Rick Mikula made a TV show based on the tagging of the monarch butterfly. The show aired in September 1987 in Hazleton, Pennsylvania.

Kerry Pado led a "Butterfly Tagging Walk" for the Polipany Audubon Society in Old Lyme, Connecticut. Kerry also assembled plants that attract butterflies for a plant sale held by the Duck River Garden Club. She also involved a group of birdwatchers at Hammonasset State Park in Madison. She also gave a lecture on monarch butterflies at a local nature club.

Special Activities cont'd.

Ralph Ramey's group at Glen Helen, Yellow Springs, Ohio has planted six acres of Red Clover in a meadow at the reserve in order to attract monarch butterflies for tagging next summer.

Sally Rappeport and her grade 5 class in New York, N.Y. mailed monarch butterflies to Florida to help them escape the cold weather.

Edna Sutton showed slides about the monarchs to several schools, churches and professional organizations and loaned material to a 7th grade student for preparation of a paper on the monarchs. She also appeared on a Richland Center, Wisconsin cable TV program talking about the life cycle of the monarchs.

Regina Van Scoy has given talks on the monarchs and raised several larvae at her daughter's elementary school in Limestone, N.Y. She and the students made drawings of monarch butterflies which they sent with a letter of appreciation to the President of Mexico thanking him for establishing the Monarch Butterfly Preserve in Mexico. The Mexican government replied by sending brochures and postcards about the monarchs to each child.

Doug Wood of Nitro, West Virginia has applied for a grant from the West Virginia Department of Natural Resources to purchase a special mower in order to improve the habitat atop Peters Mountain for monarch butterflies.

Walter Zimmerman of Greenville, Texas made a video tape of the monarch butterfly life history. The tape has been shown in Mesquite Independent School System and some other school systems in the Dallas area. Walter also held seminars for teachers on "How to Raise a Monarch Butterfly" for their classrooms.

Number of Monarch Butterflies Tagged in 1987

In reviewing your letters and tagging reports we thought that the number of monarchs tagged in 1987 would have decreased in comparison with those tagged in 1986 due to the many reports of scarcity and disease sent to us in 1987. Much to our surprise, however, the reverse is true. The number tagged in 1986 was 11,267 and increased by a remarkable 3120 tagged in 1987. This is a very encouraging development and we know that you will be delighted to learn of this particularly when many of you have expressed concern about the welfare of monarch butterflies.

Tagged Monarch Butterfly Shown on T.V.

A monarch butterfly tagged by Don Davis at Presquille, Ontario was shown on a T.V. program presented by WGBH, Boston. The title of the program was "The Mystery of Animal Pathfinders".

Notice About Reporting Place Names When You Are Tagging

When you are recording the place where you tagged a butterfly, please specify the nearest center which we can locate in an atlas. It would be helpful if you would also record the distance and direction from the center if you are tagging in a rural area so that we may trace the flight of the butterfly as accurately as possible.

Please do not record local areas such as 1. street addresses 2. parks, 3. counties unless you also include a reference to a larger center.

Special Donors

We are very grateful to those associates listed below who have donated to our research fund more than the amount suggested by us for the maintenance of this research. We appreciate their generosity very much.

Carl Allgrove	Mary Henshall	Molly Monica
Fred Armstrong	Cindy Hildebrand	The Naturalists Club of Broome Cty
Ron Austing	Marion Hill	Marilynn Norenberg
Laura Banet	Carol Hillman	Marilyn Ortt
David Beaudoin	Dorothy Hoskins	Emily Pendleton
David and Cheryl Benyi	Harvey and Lorraine Houck	Patricia Peterson
Yvonne Blanchard	Shirley Hupp	Protectors of Pine Oak Woods
Ken Borisch	Ann Irwin	Elizabeth Radens
Betsy Briggs	Island Science School	Ralph Ramey
Dick Buegler	Joan Johnson	Randy Reese
Gray Carter	Sheila Karrow	Dale Reichert
Lee Darst	Eva Kendrick	Millicent Scott
Barbara de Montes	Donna Kessler	Jean Sinclair
Erma DeWitt	Patricia Kester	Marion Smith
Shirley Duffy	Debbie Knutson	William Strong Jr.
Ronald and Carolyn Eisele	Lee Larcheveque	Edna Sutton
Margaret Elliott	Marion Lopina	Sonja Teraguchi
Pearl Eslinger	Harold Mahan	Bill Thomas
Anne Firlit	Charles and Joyce Mallery	Caroline Unick
Russell Fontaine	Shayne Mann	Regina Van Scoy
Jessie Glynn	Marjorie Mathes	Debbie Woythal
Ann Goin	Roland Matson	Helen Zimmerman
Cathy Griswold	Pamela Meyer	Walter Zimmerman
Denis Hahn	Ruth Milani	
John Klein	Helen Millward	

We received a special donation from the Polipany Audubon Society which amount would have been paid ordinarily to Kerry Pado as an honorarium for her activity as field trip leader for the Society.

In Memoriam

We regret to announce the passing of Herb Schmitz, husband of Margaret Schmitz one of our very active associates. Margaret has contributed much to our research and we hope she will continue to do so.

We were sorry to learn of the passing of the husband of Aleda Thweatt. Aleda's activities with this program have been curtailed by added family responsibilities. We sincerely hope that she will be able to be more active in this research in the near future.

Research Associates: 1987-1988

If your name does not appear on this list it is because you joined after this issue was submitted for printing. If there are other omissions, please bring them to our attention. Names are removed from the list if we have had no response over a two year period.

Adler, Dani: Port Jefferson, New York.
Allgrove, Carl: Windsor, Connecticut.
Anderson, Carolyn: Madison, Wisconsin.
Anderson, Tim: Richfield, Minnesota.
Armstrong, Fred: Red Bank, New Jersey.
Ashworth, Margaret: Northfield, Winnetka, Illinois.
Austing, Ronald: Dillsboro, Indiana.

Baden, Dave, Burnsville, Minnesota.
Baker, David: Greenwich, New York.
Bamman, Darlene: Jacksonville, Missouri.
Banet, Sister Laura: Cicero, Illinois.
Banet, Mary: Calumet City, Illinois.
Barnes, Wyatt: Bala Cynwya, Pennsylvania.
Baumgardner, Sally: Naperville, Illinois.
Beaudoin, David: Whitehall, Michigan.
Beerbower, Bruce: Hickory, North Carolina.
Benyi, David & Cheryl: Columbus, Ohio.
Best, Dan: Chardon, Ohio.
Binkley, Charles: Brampton, Ontario.
Black, Adele: Algoma, Iowa.
Black, Gladys: Pleasantville, Iowa.
Blanchard, Yvonne: Lake Shastina, California.
Bledsoe, Mary Jo: Arlington, Texas.
Boehlke, Paul: New Ulm, Minnesota.
Borisch, Ken: Cincinnati, Ohio.
Bracher, Ray: South Bend, Indiana.
Bragg, Margaret: Lebanon, New Hampshire.
Brazil, Susan & Family: Braham, Minnesota.
Breen, Jean: Brookfield, Connecticut.
Briggs, Betsy: Marshfield Hills, Massachusetts.
Brogie, Ellen: Creighton, Nebraska.
Brooks, Kenny: Manhattan, Kansas.
Brown, Duane: Paris, Ontario.
Brown, Joe Eddy: Glen Ellyn, Illinois.
Buddenhagen, Jeri: Independence, Ohio.
Buegler, Richard: Staten Island, New York.
Burnett, Cecelia: Ames, Iowa.
Burns, Ann: Maquoketa, Iowa.
Bysiek, Edward: Olean, New York.

Carpenter, Susan: Marshfield, Vermont.
Carter, Gray: Perry, Florida.
Casson, Gail: Alliston, Massachusetts.
Cavanna, Pedro: Norfolk, Connecticut.
Chandler, Nancy: Conway, New Hampshire.

Christensen, Lanette: Minneapolis, Minnesota.
Clark, Dale: Dallas, Texas.
Clements, Marta: West Paris, Maine.
Coleman, William: Ventura, California.
Crossett, Cathy: Faith, North Carolina.

Darst, Lee: Akron, Ohio.
Davis, Donald: Downsview, Ontario.
De Montes, Barbara: Can Cun, Quintana Roo, Mexico.
Derning, Mary: Wheeling, Illinois.
De Wind, Joan: Sherman, Connecticut.
De Witt, Erma: New Paltz, New York.
Dombroske, George: Elmira, New York.
Dreyer, Kay: Farragut, Iowa.
Duffy, Shirley: Essex, Massachusetts.

Eastman, Ashok: Burlington, Vermont.
Egleston, Robert & Family: Boston, Massachusetts.
Eisler, Carolyn & Ronald: Reynoldsburg, Ohio.
Elliott, Margaret: Muskegon, Michigan.
Ellis, David: Ripton, Vermont.
Emery, Mildred: Nevada, Missouri.
Eslinger, Pearl: Terre Haute Indiana.
Evans, Judy: New Lebanon, Ohio.

Feeney, Shannon: Upland, California.
Figg, Dennis: Jefferson City, Missouri.
Fink, Betty: Huntington Station, New York.
Firlit, Anne: Downers Grove, Illinois.
Fish, Vern: Cedar Falls, Iowa.
Fontaine, Russell: Davis, California.
Fuller, Terri: Fond du Lac, Wisconsin.

Gaiffe, Gary: Toledo, Ohio.
Gimbel, Gary & Linda: Warren, Ohio.
Glovas, Gregory: Bethlehem, Pennsylvania.
Glynn, Jessie: Limehouse, Ontario.
Glynn, John: Bar Mills, Maine.
Goin, Ann: Toronto, Ontario.
Goodman, W. F. :Dallas, Texas.
Gordner, Douglas: Owego, New York.
Gottfried, Carlos: Houston, Texas.
Griswold, Cathy: Gates, Oregon.

Hagenson, Barbara: Clinton, Iowa.
Hahn, Denis: Bloomington, Minnesota.
Halvorsen, Gordon: Summerville, South Carolina.
Hamilton County Park District: Cincinnati, Ohio.
Haycraft, Amanda: Owatonna, Minnesota.
Hayes, Mike: Oakfield, Wisconsin.
Hagner, Melanie: Atlantic, Iowa.
Henshall, Mary: Nampa, Idaho.
Hildebrand, Cindy: Ames, Iowa.
Hill, Marion: Lyndhurst, New Jersey.
Hillman, Carol: White Plains, New York.
Hoffman, Terri: Toledo, Ohio.

Holtzman, Lynn: Xenia, Ohio.
Hopf, Alice: Upper Black Eddy, Pennsylvania.
Horr, Alta: Gretna, Nebraska.
Hoskins, Dorothy: West Dennis, Massachusetts.
Houck, Harvey & Lorraine: Decorah, Iowa.
Howard, Linda: Paris, Ontario.
Huber, Mabel: Fernley, Nevada.
Hughes, Ann: Walnut Creek, California.
Hughes, Charlotte: Wilmington, Delaware.
Hulit, Dorothy: Steep Falls, Maine.
Hunt, Elva: : Livingston, New Jersey.
Hunter, Alan: Jamesville, New York.
Hupp, Shirley: Hinton, Virginia.
Hutchinson, Ann: Coon Rapids, Minnesota.

Inman, Virgil: South Bend, Indiana.
Irwin, Ann: Bloomfield Hills, Michigan.
Island Nature Science School: Toronto, Ontario.

Jaques, Diane: Bridgehampton, New York.
Jenner, Jannan: New York, New York.
Johnson, Joan: Winchester, Virginia.

Kaestner, Marilyn: Northville, Michigan.
Kaplan, Paul: Forest Dale, Vermont.
Karcher, George: Souderton, Pennsylvania.
Karrow, Tom & Sheila: Waterloo, Ontario.
Keeney, Norwood: Washinton, D.C.
Kelling, Liz: Aitkin, Minnesota.
Kendrick, Eva: Sault Ste Marie, Ontario.
Kendzior, Phillip: Rochester, New York.
Kessler, Donna: Audubon, Iowa.
Kester, Patricia: Appleton, Wisconsin.
Kietzke, Hilmer: Baraboo, Wisconsin.
Klinkon, Joseph: Girard, Kansas.
Knoy, Miriam: Hopedale, Illinois.
Knutson, Debbie: Iron Mountain, Michigan.
Kopley, Wendy: Skaneateles, New York.
Kough, Ruth: Dysart, Pennsylvania.
Kucker, Patricia: Raleigh, North Carolina.

Landstrom, Lee Ann: Osseo, Minnesota.
Lankford, Lynne: Baytown, Texas.
Larcheveque, Lee: South Glastonbury, Connecticut.
Larsen, Kirk: Wooster, Ohio.
Larson, Donald: Minnetonka, Minnesota.
Lee, Steven: Waynesville, Ohio.
Lerch, Edith: Andrews, North Carolina.
Levine, Ilene: Roosevelt, New Jersey.
Libbey, Jan: Clarion, Iowa.
Little, Jim: Toledo, Iowa.
Locher, Tami: Chesterland, Ohio.
Lombard, Matt: Guilford, Connecticut.
Lopina, Marion: Wauwatosa, Wisconsin.
Lorimer, Mary: West Bloomfield, Michigan.
Lutz, Marilyn: Yellowstone National Park, Wyoming.

Macht, Benjamin: Marshfield, Wisconsin.
Mahan, Harold: San Diego, California.
Mallery, Joyce & Charles: Vestal, New York.
Mann, Shayne: Brantford, Ontario.
Marble, Mr. & Mrs. Thomas: Clyde, New York.
Mask, David: Des Moines, Iowa.
Mathes, Eldred & Marjorie: Pontiac, Michigan.
Matson, Roland: Minneapolis, Minnesota.
Mayfield City Schools: Mayfield Hts., Ohio.
McCouch, Theresa: Ft. Leonard Wood, Missouri.
Meyer, Pamela: Trumbull, Connecticut.
Miktuk, Kathy: Panama, New York.
Mikula, Richard: Hazleton, Pennsylvania.
Milani, Ruth: Meaford, Ontario.
Millward, Helen: Fallon, Nevada.
Monica, Molly: Berkeley, Heights, New Jersey.
Moose, Bessie: Lewiston, Michigan.
Mueller, Pamela: Glen Ellyn, Illinois.
Mumme, L.W.: Dilley, Texas.

Naturalists Club of Broome County: Endwell, New York.
Neri, Nick: Montreal, Quebec.
Newbauer, Dany: Apple Valley, Minnesota.
Niedfeldt, Keith: Kasson, Minnesota.
Nihen, Joseph: Lansford, Pennsylvania.
Nikolai, Dick: Appleton, Wisconsin.
Nolin, Wendy: Sunapee, New Hampshire.
Norenberg, Marilyn: Duluth, Minnesota.
Norman, Helen: Lexington, Kentucky.

Ocean County 4-H Program: Toms River, New Jersey.
O'Connell, Elizabeth: Staten Island, New York.
Olson, Eric: New Haven, Connecticut.
O'Neil, Catherine: Whitmore Lake, Michigan.
O'Neil, Karen: Fenton, Michigan.
Ortt, Marilyn & Jennifer: Marietta, Ohio.
Osterbauer, Ron: Faribault, Minnesota.

Pado, Kerry: Old Lyme, Connecticut.
Pendleton, Emily: Montevallo, Alabama.
Penn, Linda: Toledo, Ohio.
Perry, Nancy: Shenandoah, Iowa.
Perzanowski, Lee & Phyllis: Havre de Grace, Maryland.
Peterson, Debe: Ash Grove, Missouri.
Peterson, Patricia: Stillwater, Minnesota.
Pfeiff, Miriam: Ruthven, Iowa.
Pitts, Joe: Houston, Missouri.
Post, Earle: West Milford, New Jersey.
Powell, Diane: New Britain, Connecticut.
Preston, Vicki: Whiteford, Maryland.
Protector of Pine Oak Woods: Staten Island, New York.

Radens, Elizabeth: New York, New York.
Ramey, Ralph: Yellow Springs, Ohio.

Ransom, Christina & Shani Darden: Plattsburgh, New York.
Rappeport, Sally: Brooklyn, New York.
Redig, Anita: Redfield, Iowa.
Reese, Pat: West Hartford, Connecticut.
Reese, Randy: Greensboro, North Carolina.
Reichert, Dale: Hanover, Pennsylvania.
Richards, Mary: Dorset, Vermont.
Riel, David: Cincinnati, Ohio.
Riley, Kathleen: Chagrin Falls, Ohio.
Roberts School: Fond du Lac, Wisconsin.
Robinson, Clara: Perkasio, Pennsylvania.
Rokita, Edward: Fishers Island, New York.
Rongish, Kathy: Underwood, Iowa.
Saehler, Edward: Iowa City, Iowa.
Sanders, Mary: Morrison, Missouri.
Schmitz, Margaret: Fond du Lac, Wisconsin.
Schneider, Dan: Guelph, Ontario.
Scott, Millicent: Casper, Wyoming.
Seibel, June: Fond du Lac, Wisconsin.
Seibel, Margaret: Fond du Lac, Wisconsin.
Sellers, Elizabeth: St. Paul, Minnesota.
Senghas, Joan: Mount Clemens, Michigan.
Schalfi, Marissa: Tenafly, New Jersey.
Shane, Vince: Bloomington, Minnesota.
Shaw, Carol: Kaufman, Texas.
Siegel, Russell: Danbury, Connecticut.
Sime, Paula: Blooming Prairie, Minnesota.
Sinclair, Jean: Earlysville, Virginia.
Sinclair, Mary Lu: Falls Village, Connecticut.
Slowik, Nancy: Staten Island, New York.
Smith, Janice: Indianapolis, Indiana.
Smith, Leslie: Citrus Heights, California.
Smith, Marion: Lyndonville, New York.
Smith, Sarah: Indianapolis, Indiana.
Smith, Trudy: Mumford Cove, Noank, Connecticut.
Spooner, Sally: Lakeville, Massachusetts.
Stifel, Doris: Toledo, Ohio.
Strike, Megan: Maplewood, Minnesota.
Strong, William: Novelty, Ohio.
Stull, Jean: Waterford, Pennsylvania.
Sutherland, Faye: Boise, Idaho.
Sutton, Edna: Richland Centre, Wisconsin.

Tallamy, Alexander: Wilmington, Delaware.
Tauber, Agatha: Ithaca, New York.
Taylor, Lawrence: Inglewood, California.
Teed, Laneil: Wichita, Kansas.
Teraguchi, Sonja: Cleveland, Ohio.
Thames, Bev.: Bay City, Texas.
Thomas, Bill: Springfield, Missouri.
Thomas, Corrine: Apalachin, New York.
Thompson, Amy: Stoneboro, Pennsylvania.
Thweatt, Aleda: Austin, Texas.
Totton, Larry: Granger, Iowa.

Tribo, Matthew: Washington, West Virginia.

Unick, Caroline: Houston, Texas.

Upper Thames River, Conservation Authority: London, Ontario.

Vandenberg Airforce Base: Vandenburg, AFB, California.

Van Scoy, Regina: Limestone, New York.

Voorhis, Annette: Lansing, Michigan.

Wareham, Dwight: Rifton, New York.

Warny, Pierre: Port Washington, New York.

Watland, Sarah: Leawood, Kansas.

Westwood Hills Environmental Center: St. Louis Park, Minnesota.

Williams, Betty: Kent, Ohio.

Wilson, Audrey: Cobourg, Ontario.

Wilson, Roger: Merville, Iowa.

Wilson, Thomas: Pownal, Maine.

Wood, Douglas: St. Albans, Wyoming.

Woodcock, Alice: Upper Montclair, New Jersey.

Woythal, Debbie: Leawood, Kansas.

Yang, Holly: Shawnee Mission, Kansas.

Yeager, Dorothy: Pearsall, Texas.

Zewe, Mr. & Mrs. Cyril: North Huntingdon, Pennsylvania.

Zimmerman, Helen: Vineland Station, Ontario.

Zimmerman, Walter: Mesquite, Texas.