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TO OUR ASSOCIATES

FROM

NORAH AND FRED URQUHART

The research dealing with the migrations of the monarch butterfly started in 1937 at which time we investigated various methods of identifying individual members of the population as they migrated from one locality to another. The first successful alar tag was applied to a fall migrant that carried its little tag for 45 miles. We have gone a long way since then.

After the war we were able to establish a small group of volunteer taggers as the result of an article published in Natural History and by a financial contribution from the Massachusetts Audubon Society initiated by Ivy Lemon (see "In Memoriam"). Over the past 36 years over 3000 volunteers (our research associates) have taken part in alar tagging in Canada, the United States, Mexico, Australia, New Zealand, and Hawaii.

Little did we realize that as a result of this cooperative effort we would be responsible for the survival of the eastern population of the monarch butterfly. Had the overwintering site in Mexico not been discovered and the importance of this phenomenon brought to the attention of the Mexican people by published articles and television and radio programs the overwintering monarchs might have been destroyed as trees were felled while the migrants were roosting on them. Now that the site had been discovered it was necessary to take measures to protect them.

It was suggested by a biologist that sufficient financial support be obtained in order to purchase the particular area of a mountain where the monarchs overwintered and then prevent anyone from entering the conserved area. This suggestion was published in a number of newspapers and a few conservation societies tried to obtain such financial assistance. This scheme, however, overlooked the needs of the local inhabitants who depended upon the forests for their income and for wood to keep their homes warm. We came to the conclusion that if the monarch butterflies were to be protected in Mexico then the overwintering phenomenon had to be made important to the inhabitants. We also realized that such a magnificent sight should be made available to anyone wishing to view it.

Seven years ago we began working with Rodolfo Ogarrio, a Mexican lawyer, a graduate of the Harvard Law School. Mr. Ogarrio established MONARCA A.C., the latter initials meaning "Conservation Association). As a result of our combined efforts and publicity generated through the media our final goal was achieved.

Now visitors can enjoy this remarkable and magnificent phenomenon under local control and, what is most important, meaningful returns to the native Mexicans in establishing souvenir shops, the manufacture of such souvenirs, increase hotel and motel accommodation, paid guides and guards, and an entrance fee - the latter to assist in covering various expenses to assure the protection of the area.
We wish to share this development with you by presenting a little of the correspondence involved and the program for the protection of the monarch butterflies issued from the Secretaría de Desarrollo Urbano y Ecología.

There will no doubt be further developments and difficulties. We will keep you informed from year to year.

We sincerely trust that you may be able to visit the locus at Angangueo and witness this remarkable phenomenon.
November 4th, 1980

Dr. Fred Urquhart
Scarborough College
University of Toronto
Toronto, Intario
Canada

Dear Dr. Urquhart:

On July 25th, 1980 I wrote to you a letter informing you about a group of people interested to work in México for the protection of the wintering sites of the Monarch Butterfly.

We have been legally incorporated as a non profit organization and in accordance with Article Seven, Paragraph B, which makes reference to the members of the Association, we would be very pleased if you would accept to become an honorary member of our Association, since we are aware that the formation of the same is due, in a high degree, to your concern and work over the last twenty years for the Monarch Butterfly; this has made us conscious not only of the existence of this unique phenomenon, but of the need and obligation to protect it.

Enclosed I am sending you a photostatic copy of our Articles of incorporation, which you may find interesting to read.

As I have already informed you, we are working in coordination with different persons and institutions here in México among others with Dr. Leonila Vázquez from the National University of México and Martha Venegas from Televisa, S.A., both of whom have informed me about their good relationship with you, as well as with the Ministeries of Agriculture and of Public Works.

Hopping to hear from you and offering you once again the use of our Association, as well as our work for the undertaking of any project related to the preservation of the Monarch Butterfly and its wintering sites in México, I remain,

Sincerely yours,

Rodolfo Ogarrio R.E.

Av. Constituyentes 345-7° Piso
Mexico 18. D. F. Tel. 277-70-06
PROGRAM FOR THE PROTECTION OF THE MONARCH BUTTERFLY

The Mexican Government has declared six areas, in the states of Mexico and Michoacan, as the Monarch Butterfly Reserve.

The establishment of the reserve required an audacious process, beginning with a choice between two alternatives:

- An arbitrary expropriation of the Monarch wintering grounds, which would have lacked the participation and backing of the various groups involved.

- The coordination between various Federal Government agencies, two state governments, and the cooperation of farmers, local residents, and a wide variety of social groups in order to reach a viable solution.

The second alternative offered a better opportunity for a permanent success of the project.

To put that choice into execution, it was necessary to coordinate the different government agencies which have an influence over the site and the social groups involved:

- SEDUE: Federal Ecology Ministry
- SARH: Federal agency which controls agricultural production and water resources.
. SRA: Federal Land Tenancy, and Property Title Registry.
. SECTUR: Federal Tourism Ministry

All of which are cabinet-level departments.

. The state governments of Michoacan and Mexico and seven municipalities.
. The local community: farmers and peasant organizations.

It was also necessary to define the zones of the reserve:

1. The core areas: the Monarchs' chosen wintering sites where all unnecessary human activity is prohibited.

2. The buffer zone: where existing farms, forestry and villages may remain, but cooperating with a rational use and protection of the natural resources.

Once these zones were determined, with the participation of specialists and ecological groups, it was necessary to come to an agreement with landowners in both zones: in the Reserve, to prevent any disturbance of the ecosystem of the Monarchs habitat. In the buffer zone: to insure the strict acceptance of the limits and the responsible use of the land and its resources.
We must note that this project has been financed at a time of serious economical difficulties.

The strategy adopted has resulted in a series of actions which have guaranteed the preservation of the Monarch Butterflies sanctuary.

CONTINUING ACTIVITY

1. SEDUE (Secretariat of Ecology and Urban Development)

   In cooperation with the two State Governments, and the municipal authorities, it promotes the regulation about the use of land, which establishes the core zones of the Reserve as well as the buffer zones.

   A general agreement to comply with regulations, has been reached with the land owners. The agreement contains a clause which states that violation to the regulations is cause for vigorous application of the law.

2. SEDUE—State governments of Michoacan and Mexico:

   Covenant for the execution of coordinated actions of vigilance of the Reserve.
PROGRAM FOR THE URBAN AND HOUSING IMPROVEMENT OF THE
COMMUNITIES SURROUNDING THE ECOLOGICAL RESERVE.

PURPOSE: TO IMPROVE THE QUALITY OF LIFE OF THE LOCAL
INHABITANTS AND THE TRADITIONAL BEAUTY OF
THE REGION.

SARH - SECRETARIAT OF AGRARIAN REFORM (SRA), SECRETARIAT
OF FISHING (SEPESCA) AND SEDUE:

- PROMOTION OF PROJECTS DESIGNED TO IMPROVE THE
RATIONAL USE OF THE NATURAL RESOURCES OF THE
BUFFER -OR INFLUENCE- ZONES OF THE RESERVE.

PURPOSE: TO INCREASE AND DIVERSIFY THE
REGIONAL PRODUCTION, IN CONGRUENCE
WITH THE PROTECTION OF THE ECOSYSTEM.

SEDUE - SEP:

- THE MAIN RESEARCH CENTER LOCATED IN "VALLE DE
LAS PAPAS", SIERRA CHINCUA, WILL BE OPENED TO
ALL AUTHORIZED RESEARCH INSTITUTIONS AND
UNIVERSITIES THAT REQUIRE ITS USE.

PURPOSE: TO DEVELOP THE SCIENTIFIC KNOWLEDGE
AND TECHNOLOGY FOR THE MANAGEMENT OF
NATURAL RESOURCES.

SECTUR:

SOME 50,000 VISITORS CAME TO SEE THE MONARCH LAST YEAR. THE NUMBER INCREASES YEARLY. IT IS THE PURPOSE OF THE TOURIST DEPARTMENT TO GUIDE AND ASSIST THEM WHILE PROTECTING THE MONARCH.

PROJECTS INCLUDE AUTHORIZED VIEWING AREAS, SHELTERS AND LODGES APPROPRIATE TO THE ENVIRONMENT, AND RESPONSIBLE GUIDES.

SECRETARIAT OF PROGRAMMING AND BUDGET:

THIS AGENCY COORDINATED THE PARTICIPATION OF THE PUBLIC ADMINISTRATION AGENCIES INVOLVED IN THE PROGRAM FOR THE PROTECTION OF THE MONARCH BUTTERFLY.
Local Governments:

They support the actions undertaken in this program and will contribute to the tasks of supervising, monitoring and evaluating its results.
DECREE ESTABLISHING THE MONARCH BUTTERFLY ECOLOGICAL RESERVE

SIGNED ON SEPTEMBER 30, 1986 AND PUBLISHED ON THE FEDERAL REGISTER ON OCTOBER 9, 1986.

(ABSTRACT)


The basic purpose is to promote the conservation of the main ecosystems of the country, threatened by the human activities; to preserve their natural beauty; to regulate the productive activities; to support basic and applied ecological research projects and to rationalize the use of the natural resources.

The 1984-1988 National Ecology Program was approved on August 21, 1984 by a Federal Executive Decree. One of its strategic projects, designed to preserve the country’s natural resources and to promote their rational use, in support of socioeconomic development, is the National System of Protected Natural Areas. This Program establishes actions to protect flora and fauna, species, like the "Monarch" butterfly.

The most important political lineaments of the Executive in the management of protected natural areas are, among others:

To preserve the diversity and ecological equilibrium of the flora and fauna species, particularly those that are rare, specially beautiful, endemic, threatened or in danger of extinction within their natural ecosystems;
To genetically safeguard the evolutive diversity of the species; and

To turn the protected areas into research centers.

The March 25, 1980 Decree established as a refuge and reserve zone of the wild fauna those areas where the “Monarch” Butterfly overwinters and breeds. It also established an indefinite closed season of its hunting and capturing, and the use of its products and wastes was forbidden. These decisions are maintained in the present decree.

The Urban Development and Ecology and the Agriculture and Hydraulic resources Secretariats carried on studies and research on those areas that require the protection, improvement, restauration and conservation of the environmental conditions favorable to the “Monarch” butterfly, and proposed an executive decree declaring the localization, extension and characteristics of the areas that must be protected precisely because in these areas the mentioned butterfly migrates, overwinters and breeds.

The areas of Sierra Chincua, Sierra El Campanario, Cerros Hualcal, Chivati, Pelon and Altamirano, located in the Municipalities of Ocampo, Angangueo, Zitacuaro and Contepec, in the states of Michoacan, and Donato Guerra, Villa de Allende and Temascalcingo, in the State of Mexico, are the main places where this lepidopterous hibernates and breeds.

This region will be divided into two kinds of areas: the nucleus and the cushioning zones:

The nucleus zones are areas that constitute the indispensable habitat for the butterfly’s migration and the genetic bank of the several species that inhabit there. The only human activities allowed there will be those of research. There, a
TOTAL AND INDEFINITE CLOSED SEASON, FOR THE FORESTRY EXPLOITATION, OF THE FLORA IN GENERAL AND OF THE WILD FAUNA, HAS BEEN DECLARED.

THE BUFFER ZONES, ARE THOSE DESIGNATED TO PROTECT THE FIRST ONES FROM THE EXTERNAL IMPACTS, AND WHERE ECONOMICALLY PRODUCITVE ACTIVITIES WILL HAVE TO BE AUTHORIZED BY THE URBAN DEVELOPMENT AND ECOLOGY SECRETARIAT. IN THESE AREAS, THE CLOSED SEASONS FOR THE FORESTRY AND CYNEGETIC USE WILL HAVE A TEMPORARY CHARACTER.

THE ESTABLISHMENT OF THE "MONARCH BUTTERFLY ECOLOGICAL RESERVE" REQUIRES A TOTAL SURFACE OF 16,110-10-40 HECTARES, INTEGRATED BY SIX NUCLEUS ZONES WITH A TOTAL SURFACE OF 4,490-61-00 HECTARES, AND FIVE CUSHIONING ZONES WITH A SURFACE OF 11,619-53-50 HECTARES.

THE ESTABLISHMENT OF THE PROTECTED NATURAL AREAS IS DECLARED OF PUBLIC UTILITY AND SOCIAL INTEREST.

THE SECRETARIAT OF URBAN DEVELOPMENT AND ECOLOGY WILL BE RESPONSIBLE FOR THE ACTIONS OF CONSERVATION, DEVELOPMENT AND VIGILANCE OF THE RESERVE. IT WILL PROMOTE AGREEMENTS OF COORDINATION WITH OTHER GOVERNMENTAL AUTHORITIES, AT THE FEDERAL, STATE AND MUNICIPAL LEVELS, AND ESTABLISH A CONCERTATION OF ACTIONS WITH THE PRIVATE AND SOCIAL SECTORS INVOLVED IN THE AREA.

THE MENTIONED SECRETARIAT WILL TAKE THE NECESSARY MEASURES TO AVOID THAT CONTAMINATING FACTORS OR AGENTS MAY AFFECT THE BUTTERFLY'S HABITAT, AND WILL ESTABLISH THE TECHNICAL AND SCIENTIFIC RESEARCH CRITERIA IN THE AREAS TO BE PROTECTED. IT WILL NOT AUTHORIZE ANY PUBLIC OR PRIVATE WORKS IN THE NUCLEUS ZONES NOT COMPLYING WITH THE PURPOSES OF THIS DECREES.
Those governmental agencies that, given their functions, should have to develop actions in the reserve's area, must do so in strict accordance with the purposes of this Decree.

In the nucleus zones, there will be a total and indefinite closed season for the forestry exploitation and the use of the wild flora and fauna. There will also be an indefinite closed season in all the national territory on the hunting and capture of the "Monarch" butterfly.

In the cushioning zones, there will be a temporary closed season for the use of the forestry, of the flora in general and of the wild fauna.

The use of the waters of the whole region will be restricted to the domestic and agricultural irrigation needs of its inhabitants.
Recapture Records of Monarch Butterflies for 1986

Listed below are the recapture records of monarch butterflies, tagged by you, our associates. The list this year is shorter than the list for 1985 and it occurred to us that the reduction in recaptures might be due to the long season of cool, wet weather in the fall of 1986 which prevented people from being out of doors and hence the tagged butterflies remained undetected.

An increasing number of people who recapture tagged monarch butterflies report the number of the tag and release the butterfly to continue its migration. This is a very encouraging trend since this behavior indicates a growing awareness of the need for conservation of all wildlife.

Those listed below are associates whose tagged butterflies were recaptured near the place where they were tagged:

Dick Buegler Staten Island, N.Y.
Donald Davis Presquile, Ont.
Marion Hill Lyndhurst, N.J.
Patricia Kester Appleton, Wis.
Tami Locher Chesterland, Oh.
Vince Shane, Bloomington, Minn.
Bill Thompson Springfield, Mo.

Other recaptures made at greater distances are listed below:

Kenneth Brooks Manhattan, Kan.
Donald Davis Edmond, Ok.
* " " Kersey, Pa.
Eva Kendrick Whitehouse Station, N.J.
Donna Kessler La Crosse, Wis.
**Marion Lopina Manhattan, Ka.
Pamela Meyer Cudahy, Wis.
Dale Reichert Greens Farms, Ct.
*Vince Shane Alexandria, Va.

* Indicates the butterfly was recaptured at its release site.
** Indicates the butterfly was recaptured at a location more than 100 miles from the release site.
Recaptures cont'd.

Doris Stifel          Toledo, Oh.          Rensselaer, Ind.
Bill Thomas           Springfield, Mo.    Shreveport, La.
*Debbie Woythal       Prairie Village, Kan.  Brazito, Mo.
Helen Zimmerman       Vineland Station, Ont.  Marblehead, Oh.
***Walter Zimmerman   Mesquite, Texas     Forney, Texas

*indicates an aberrant flight S/E.
**indicates an aberrant flight S/S/E.
***indicates a spring migrant.

All of these recaptures have added to our knowledge of the migration of the monarch butterfly. Remember, every butterfly that you tag has the potential of answering one of the many questions that still remain to be answered about the migration of this remarkable insect. Bear this in mind every time you place a tag on the wing and do it as carefully as possible.

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, or 3. counties unless you also include a reference to a larger center.

Reports of First Monarch Eggs

Those reporting the first eggs that they found in 1986 are:

Marjorie Mathes      Pontiac, Mich.      May 17/86
Patricia Kucker      Raleigh, N.C.       June 3/86
Every year it is fascinating to receive records from you, our associates, indicating when you saw your first monarch butterfly of the season. Generally speaking the return of the spring migrants spreads like a wave from Texas to the most northerly edge of the breeding area, showing their slow but determined drive to return north from the overwintering sites.

Since monarch butterflies travel very fast and rarely stop to feed during the spring migration it is difficult to see them since there are not so many flowers in home gardens. However, if you keep alert you may have the satisfaction of seeing them return to your area. When you do, please keep a note of your observation for our next annual report.

Listed below are the records sent to us for spring migrants observed during 1986 in order of the date on which they were observed:

<table>
<thead>
<tr>
<th>Name</th>
<th>Location</th>
<th>Date</th>
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<tbody>
<tr>
<td>Lynne Lankford</td>
<td>Bay Town, Texas</td>
<td>March 10/86</td>
</tr>
<tr>
<td>Dorothy Yeager</td>
<td>Pearsall, Texas</td>
<td>March 15/86</td>
</tr>
<tr>
<td>Walter Zimmerman</td>
<td>Mesquite, Texas</td>
<td>March 18/86</td>
</tr>
<tr>
<td>Mildred Emery</td>
<td>Nevada, Missouri</td>
<td>March 29/86</td>
</tr>
<tr>
<td>Ron Austing</td>
<td>Dillsboro, Ind.</td>
<td>April 3/86</td>
</tr>
<tr>
<td>Emily Pendleton</td>
<td>Montevallo, Ala.</td>
<td>April 13/86</td>
</tr>
<tr>
<td>Kirk Larsen</td>
<td>Ann Arbor, Mich.</td>
<td>April 19/86</td>
</tr>
<tr>
<td>Bill Thomas</td>
<td>Springfield, Mo.</td>
<td>April 26/86</td>
</tr>
<tr>
<td>Roger Wilson</td>
<td>Moville, Iowa</td>
<td>May 10/86</td>
</tr>
<tr>
<td>Paul Boehlke</td>
<td>New Ulm, Minn.</td>
<td>May 19/86</td>
</tr>
<tr>
<td>Eva Kendrick</td>
<td>Sault Ste. Marie, Ont.</td>
<td>May 29/86</td>
</tr>
<tr>
<td>*Mary Henshall</td>
<td>Nampa, Idaho</td>
<td>June 1/86</td>
</tr>
<tr>
<td>Donald Davis</td>
<td>Presquile, Ont.</td>
<td>June 4/86</td>
</tr>
<tr>
<td>Lee Ann Landstrom</td>
<td>Minneapolis, Minn.</td>
<td>June 5/86</td>
</tr>
<tr>
<td>Fred Urquhart</td>
<td>Scarborough, Ont.</td>
<td>June 8/86</td>
</tr>
<tr>
<td>Vince Shane</td>
<td>Bloomington, Minn.</td>
<td>June 9/86</td>
</tr>
<tr>
<td>Debbie Knutson</td>
<td>Iron Mountain, Mich.</td>
<td>June 19/86</td>
</tr>
</tbody>
</table>

*one of the western population.
NEED FOR MORE MILKWEED PLANTS IN THE LOCAL BREEDING AREAS

Now that protection is being given to the monarch butterflies during their overwintering period in Mexico and, hopefully, in California, we must turn our attention to conservation and the production of more milkweed plants throughout the breeding area. If the milkweed plants are destroyed there will be very few monarch butterflies overwintering in Mexico.

As a result of the expansion of cities and highways, land areas where milkweed plants once flourished are being rapidly annihilated. In addition, the promiscuous use of herbicides along roadways, railway lines and marginal farm lands is rapidly reducing the amount of milkweed. The use of insecticides is having a devastating effect on larval populations in many parts of the United States and Canada. If the continuing reduction of the populations of the monarchs is to be curtailed it is necessary to reduce as much as possible the wanton misuse of chemicals, not only for the conservation of the monarch but also its numerous insect relatives without which the web of life that has evolved over the millions of years would be irreparably destroyed. We, as a group of research naturalists can do our part in bringing such deleterious programs to the attention of our local governments by newspaper articles, magazine articles, and in our popular lectures to various local groups and on television programs.

We can act directly by planting milkweed in our gardens and asking our neighbours to do so. Milkweed plants will attract butterflies; they will attract ovipositing female monarchs; they will act as food for the young of the monarch butterfly; the flowers of the milkweed are most attractive and give off a most delightful aroma.

We can carry out a program of planting seeds along roadways, the margins of fallow fields and fields not under cultivation. The method is very simple: simply scratch the earth with a stick; spread a few seeds; and cover lightly with top soil. When you are out walking in the country or looking for monarch butterflies, carry a few milkweed seeds in your pocket. Like Johnie Appleseed, plant milkweed seeds across the land.

Many species of milkweed have rhizomatous roots - roots that have vegetative centers from which clusters of plants grow. The roots are cut into sections each section bearing a vegetative center. Plant the sections to a depth of four or five inches.

Those or our associates involved in teaching might arrange to plant milkweed in the school flower garden and also encourage the students to plant milkweed in their home gardens. The teacher can use this as part of the natural science program. The students could learn about the interesting manner of cross-fertilization among milkweed and also examine the flowers for insect visitors, many of which may become trapped in the flower their legs caught in the pollinium. There is a wealth of information to be obtained in the study of the milkweed, the food of the monarch larva.
You might like to read the excellent article written by Douglas Morse that was published in Scientific American, July, 1985. It gives a very good account of the milkweed and its insect visitors, including the various stages in the development of the monarch.

Please let us know of your activities with respect to the conservation of the monarch in your area so that we may include some of them in our next annual report. If you would like to have seeds of Asclepias syriaca we would be pleased to send them to you. This species grows mostly in the northeastern parts of the United States and eastern Canada, particularly in the vicinity of the Great Lakes.

Special Donors

The financial support that we receive from you, our associates, is vital to the continuation of this research. Your donations help to pay for the expense of printed material, postage, Spanish translations, and secretarial help. However, this past year we have operated on a very slim budgetary margin and so we are especially grateful to those listed below who have contributed more than the suggested donation. This extra funding allows us to make long distance telephone calls, and special postal services when these are necessary for obtaining information.

Carl Allgrove
Fred Armstrong
Ron Austing
Bruce Beerbower
David and Cheryl Benyi
Ken and Bonnie Borisch
Betsy Briggs
Kenneth Brooks
Fran Buchanan
Dick Buegler
Gray Carter
Barbara DeMontes
Joan DeWind
Erma Dewitt
Shirley Duffy
Margaret Elliott
Jessie Glynn
Denis Hahn
Marion Hill

Mabel Huber
Shirley Hupp
Ann Irwin
Island Science School
Joan Johnson
Eva Kendrick
Donna Kessler
Patricia Kester
Debbie Knutson
Patricia Kucker
Lee Larcheveque
Marion Lopina
Harold Mahan
Charles and Joyce Mallery
Shayne Mann
Marjorie Mathes
Roland Matson
Ruth Milani
Helen Millward

Molly Monica
Naturalists Club of Broome County

Patricia Peterson
Ralph Ramey
Christina Ransom & Shani Darden
Dale Reichert
Millicent Scott
Marion Smith
Sally Spooner
Doris Stifel
William Strong
Edna Sutton
Sonja Teraguchi
Bill Thomas
Caroline Unick
Alice Woodcock
Walter Zimmerman
WHEREVER BUTTERFLIES ARE TAGGED, THERE WILL ALWAYS BE INTERESTED ONLOOKERS...

... AND A FEW GROUNDHOG BOOBY TRAPS.

We would like to thank our associate, Ruth Milani, for submitting these delightful cartoons for our report.
SPECIAL NOTICE TO THOSE WHO HAVE TAGS LEFT OVER FROM PREVIOUS YEARS

Occasionally, one of our associates who has alar tags left over from a previous season becomes concerned about whether or not the "old" tag will still stick to the butterfly's wing and worry that the tag might drop off after being applied to the wing.

If you are concerned about the adhesive quality of your tags please be assured that the adhesive on the tag is a permanent acrylic adhesive which will remain sticky indefinitely. There is a special ingredient in the adhesive mix to ensure permanent stickiness.

If in doubt, take one or more of your tags and fold it in two with the adhesive sides together, but one side overlapping the other like this:

Now, press the surfaces firmly together.

Next, try to separate the two parts of the tag - if the adhesive is in good condition, no matter how old the tag is, you will not be able to separate the two surfaces.

If you can separate the two surfaces of the tag, please return it or them to me for examination and I shall be pleased to send you more tags.

We have tested 10 year old tags that are in our possession and have found the glue to be satisfactory on them.

Please remember when you are applying a tag to remove the scales carefully from both sides of the butterfly's wing. You may have to wipe the scales from your fingers two or three times before you can clear the wing area where you intend to place the tag. This is very important as the tag will not stick to the wing unless the scales are removed from the membrane.

Also, if you are rearing monarch butterflies be sure to keep them at least 24 hours after emergence in order to allow the wings to harden properly so that you may remove the scales.
MONARCH FLIGHTS OVER WATER

Monarch butterflies tend to avoid flights over large bodies of water. However, if the flight path is over water then the migrants will tend to continue on course. Thus, at Point Pelee, Ontario, a few monarchs will fly over Lake Erie to the north shore of Ohio, but the majority continue their southward movement to the northwest portion of Ohio and through Indiana. Similar water crossings have been observed off the south coast of New Jersey and Maryland. We have also had many reports of large numbers flying over the ocean, occasionally many miles from land such as between the mainland and Bermuda. There are also flights over the ocean to the islands of the Bahamas, to Cuba and to Yucatan. While on a field expedition in Yucatan, we stood on the north shore and watched monarch butterflies coming in off the ocean assisted by a brisk northerly wind. These migrants continue southward and, we believe, overwinter in the mountains of Guatemala.

During periods of strong winds fall migrants usually take shelter on the trees and bushes on the shores of large bodies of water. It is under such conditions that they may be dashed against the surrounding vegetation causing damage to their wings. When there are strong onshore winds, causing large waves, the migrants may be cast into the water and the wave action prevents them from taking off, especially if the wings have been damaged. We have found by experimentation that it takes approximately thirty minutes for the wings to become completely saturated so that flight is impossible. Such water-logged specimens are, at times, cast up on the shore producing extensive windrows of dead, crippled or water-logged specimens.

John Connors, a tagging assistant of Pat Kucker relates an interesting experience concerning monarchs being forced into the ocean resulting from strong winds (in a letter from Pat).

"John Connors arrived in Brighton, N.J. hours after Hurricane Gloria (Sept. 85) had passed the coast to find the pines, goldenrod and anything alive covered with monarchs. He continued on to Montauk, N.Y. to visit family and when he arrived the monarchs were washing up on the beach. John and his mother washed them off in the bathtub, put them on the porch outside in the sun to dry; survival rate was 50%.

MONARCH BUTTERFLY: INTERNATIONAL TRAVELLER

This book is scheduled to be available this spring (March). We have a list of those requesting a copy at the reduced "author's price". We will contact you later with respect to price and the type of autograph you desire.
Number of Monarch Butterflies Tagged in 1986

In spite of many associates reporting adverse weather conditions in many areas, that is, undue rainfall and cold weather during the summer, nevertheless, when we totalled up the number of monarch butterflies tagged during 1986 it was still an encouragingly high number— a total of 11,267.

We have had a few reports from associates who discovered disease in the larval and pupal stages of the monarchs and still others who have reported the destruction of field habitats where they were accustomed to collect monarchs. Some associates reported a lack of milkweed, possibly due to the local spraying of herbicides.

Conservation Sticker

Through the kindness of Dennis Figg of the Conservation Commission of the State of Missouri we are able to provide you with the attractive sticker attached to this page.

Since the sticker has a conservation message we thought that you might like to place it in a conspicuous place to emphasize the need for protecting the monarch butterfly. We placed ours on the window of our car where it adds a bright note of color.

REQUEST FOR POSSIBLE SPONSOR

With the increased costs of materials, postage, and labor, we are having a rather difficult time keeping our University Research Account within workable limits. Because of the nature of this type of long-term research it is not possible to obtain Federal or Provincial grants. Therefore, we have been approaching commercial firms that have been using the monarch butterfly to designate their products and our research results in their advertisements. We have had no success.

If you have any suggestions please send them to us and we will act upon them.
Publicity

We would like to thank all of you who sent us clippings from newspapers and magazines during 1986. The clippings make very enjoyable reading and if you would be interested in seeing a particular item, please let us know and we shall send you a photocopy of it.

Listed below are the associates who sent us clippings:

Bruce Beerbower, Ray Bracher, Bill Coleman, Donald Davis, Erma DeWitt, Kay Dreyer, Dennis Figg, Gregory Glovas, Jessie Glynn, Barbara Hagenson, Woody Keeney, Donna Kessler, Lynne Lankford, Lee Larcheveque, Pamela Meyer, Rick Mikula, Margaret Schmitz, Faye Sutherland, Edna Sutton, Laneil Teed, Bill Thomas, Corrine Thomas, Dorothy Yeager, Cyril Zewe.

Excerpts were sent to us from the following publications:


Note: Please be sure if you are sending us a clipping to identify the publication from which it was taken so that we may mention it in our next annual report. Thank you.

Special Activities of Associates

Many of our associates report that they are involved in activities in connection with the monarch butterfly research which go beyond the normal activities of rearing, tagging and reporting on monarch butterflies in their area.

These reports sent to us by Fred Armstrong, Bruce Beerbower, Paul Boehlke, Bill Coleman, Don Davis, Margaret Schmitz and Walter Zimmerman include special classroom projects concerned with milkweed, the holding of a community "Monarch Watch", special lectures to school children and senior citizens, the introduction of new programs at nature centers, encouraging citizens to establish gardens to attract butterflies and the making of a cable TV series for schools based on the life cycle of the monarch butterfly.

Faye Sutherland reported that she had sent a letter of protest to her local newspaper, The Idaho Statesman, in regard to the indiscriminate spraying of herbicides which appeared to destroy the milkweed plants in the area.
In Memoriam

We were sorry to learn from Dick Buogler of the passing of Olivia Hansen who joined our group in 1971 and had worked faithfully with us since that time. An excerpt from Dick's letter is a genuine tribute to her, "She had been actively directing the High Rock Park Conservation Center and was a beautiful role model for numerous young, aspiring naturalists and environmental educators. We will all miss her."

Memorial Donations for Ivy Lemon

Bruce Beerbower has sent a donation in memory of Ivy Lemon with the following tribute, "She was a fine lady and introduced me (along with many others) to the mystery of the Monarch Migration."

Shirley Duffy has written about Ivy Lemon, "I am writing as a friend of the late Ivy Lemon. She certainly left an indelible mark on everyone and everything in which she became involved. I should like to help you with your efforts and to keep Ivy's Memory alive by sending a contribution," (to the Insect Migration Research Fund).
RESEARCH ASSOCIATES: 1986-1987

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.

Abraham, G. W. & Connie: Waseca, Minnesota.
Anderson, Carolyn: Madison, Wisconsin.
Anderson, Tim: Richfield, Minnesota.
Armstrong, Fred: Red Bank, New Jersey.
Ashworth, Margaret: Winnetka, Illinois.
Austing, G. Ronald: Dillsboro, Indiana.

Baden, Dave: Burnsville, Minnesota.
Banet, Sister Laura: Cicero, Illinois.
Banet, Mary: Calumet City, Illinois.
Baumgardner, Sally: Naperville, Illinois.
Beerbower, Bruce: Hickory, North Carolina.
Bengtson, Annie: Afton, Minnesota.
Benyi, Mr. & Mrs., David & Ryan: Columbus, Ohio.
Best, Nancy: Mayfield Heights, Ohio.
Bledsoe, Mary Jo: Arlington, Texas.
Borisch, Ken & Family: Cincinnati, Ohio.
Bouska, Sylvia: Atkinson, Nebraska.
Bracher, Ray W.: South Bend, Indiana.
Brazil, James, Susan & Family: Braham, Minnesota.
Breen, Jean: Brookfield, Connecticut.
Briggs, Betsy: Marshfield Hills, Massachusetts.
Brooks, Kenny A.: Manhattan, Kansas.
Brown, Joe Eddy: Glen Ellyn, Illinois.
Buddenhagen, Jeri: Independence, Ohio.
Brunett, Cecelia: Ames Iowa.

Carlisle School Student Council: Martinsville, Virginia.
Carlson, Alfred: Toms River, New Jersey.
Carpenter, Susan: Marshfield, Vermont.
Carter, F. Gray: Perry, Florida.
Casson, Gail: Brighton, Massachusetts.
Catlett, David: Mentor-on-the-lake, Ohio.
Chandler, Nancy: Conway, New Hampshire.
Christian, Scott: Martinsville, Virginia.
Clements, Marta: West Paris, Maine.
Cleveland Museum of Natural History: Cleveland, Ohio.
Coleman, William J.: Ventura, California.
Crosett, Cathy: Faith, North Carolina.

Dallas Museum of Natural History: Dallas, Texas.
Darst, Lee: Akron, Ohio.
Davis, Donald, A.: Downsview, Ontario.
Derning, Mary: Wheeling, Illinois.
Dreyer, K.: Farragut, Iowa.
Duffy, Shirley: Essex, Massachusetts.

Eastman, Ashok: Burlington, Vermont.
Egleston, Robert & Family: Boston, Massachusetts.
Elliott, Margaret: Muskegon, Michigan.
Ellis, David A.: Ripton, Vermont.
Emery, Mildred: Nevada, Missouri.

Feeney, Shannon: Upland, California.
Fells, Jean: Webster City, Iowa.
Figg, Dennis, E.: Jefferson City, Missouri.
Fink, Betty: Huntington Station, New York.
Firlit, Anne: Dowsers Grove, Illinois.
Fish, Vern: Cedar Falls, Iowa.
Fuller, Terri: Fond du Lac, Wisconsin.
Fullington, Richard: Dallas, Texas.
Gaffe, Gary: Toledo, Ohio.
Glynn, Jessie: Limehouse, Ontario.
Goodman, W. F.: Dallas, Texas.

Hagenson, Barbara: Clinton, Iowa.
Hahn, Denis R.: Bloomington, Minnesota.
Halvorsen, Gordon R.: Summerville, South Carolina.
Hamilton County Park District: Cincinnati, Ohio.
Hamilton County Conservation Board: Webster City, Iowa.
Hansen, Virginia: Marshfield, Wisconsin.
Hayes, Mike: Oakfield, Wisconsin.
Heller, Caroline: Bronx, New York.
Henshall, Mary S.: Nampa, Idaho.
Heupel, Jeffrey A.: Welcome, Minnesota.
Hill, Marion: Lyndhurst, New Jersey.
Horr, Alta L.: Gretna, Nebraska.
Hoskins, Dorothy M.: West Dennis, Massachusetts.
Houck, Harvey & Lorraine: Decorah, Iowa.
Huber, Mabel L.: Fernley, Nevada.
Hughes, Charlotte, B.: Wilmington, Delaware.
Hulit, Dorothy G.: Steep Falls, Maine.
Hunt, Elva L.: Livingston, New Jersey.

Inman, Virgil: South Bend, Indiana.
Island Natural Science School: Toronto, Ont.
Jahn, Susan L.: Des Moines, Iowa.
Johnson, Joan L.: Winchester, Virginia.

Kaestner, Marilyn: Northville, Michigan.
Karrow, Tom & Sheila: Waterloo, Ont.
Keeney, Norwood: Washington, D.C.
Kelling, Liz.: Aitkin, Minnesota.
Kessler, Donna: Audubon, Iowa.
Kester, Patricia A.: Appleton, Wisconsin.
Kietzke, Virginia: Baraboo, Wisconsin.
Kirwan, John: Monson, Massachusetts.
Klein, John: Cincinnati, Ohio.
Knapik, Endwell, New York.
Knutson, Debbie: Iron Mountain, Michigan.
Kroupa, Jaci: Houston, Texas.
Kucker, Patricia.: Raleigh, North Carolina.

Landstrom, Lee Ann: Osseo, Minnesota.
Langefelds, Doug.: St. Louis Park, Minnesota.
Lankford, Lynne: Baytown, Texas.
Larson, Donald W.: Minnetonka, Minnesota.
Lee, Steven M.: Waynesville, Ohio.
Levine, Ilene: Roosevelt, New Jersey.
Lindburg, Steve: Lincoln, Nebraska.
Little, Jim: Toledo, Iowa.
Locher, Tami: Chesterland, Ohio.
Lombard, Matt: Guilford, Connecticut.
Lopina, Marion T.: Wauwatosa, Wisconsin.
Lorimer, John & Family: West Bloomfield, Michigan.
Lundberg, Lillian: Iron Belt, Wisconsin.

MacDonald, Graham: Burks Falls, Ontario.
Macht, Benjamin: La Crosse, Wisconsin.
Mahan, Harold: Jamestown, New York.
Malick, Patricia: Stevens Point, Wisconsin.
Mann, Shaye: Brantford, Ontario.
Mathes, Eldred & Marjorie: Pontiac, Michigan.
Matson, Roland: Minneapolis, Minnesota.
McAllister, Noreen: Orchard Park, New York.
Miktuk, Kathy: Panama, New York.
Milani, Ruth: Meaford, Ontario.
Millward, Helen: Fallon, Nevada.
Miner, Dianne: Strongville, Ohio.
Monica, Molly: Berkeley Heights, New Jersey.
Moss, Joseph: Roanoke, Louisiana.
Moose, Bessie: Lewiston, Michigan.
Mueller, Pamela: Glen Ellyn, Illinois.
Mullaly, Sharon: Hayward, Wisconsin.
Mumme, L.W.: Dilley, Texas.
Murphy, Heather: Barrington, Rhode Island.

Newbauer, Dany: Apple Valley, Minnesota.
Niedfeldt, Keith: Kasson, Minnesota.
Nihen, Joseph: Lansford, Pennsylvania.
Nikolaus, Dick: Appleton, Wisconsin.
Noel, Kris: Bloomington, Minnesota.
Noreenberg, Marilynn: Duluth, Minnesota.
Norman, Helen: Lexington, Kentucky.

Olson, Eric: New Haven, Connecticut.
O'Neil, Catherine: Whitmore Lake, Michigan.
Ortt, Marilyn & Jennifer: Marietta, Ohio.
Osterbauer, Ron: Faribault, Minnesota.

Pendleton, Emily: Montevallo, Alabama.
Penn, Linda: Toledo, Ohio.
Perry, Belinda: Sarasota, Florida.
Perry, Nancy: Shenandoah, Iowa.
Perzanowski, Phyllis: Havre de Grace, Maryland.
Petersen, Patricia: Stillwater, Minnesota.
Pitts, Joe: Houston, Missouri.
Post, Earle: West Milford, New Jersey.
Preston, Vicki: Whiteford, Maryland.
Putnam City Gifted Program: Oklahoma City, Oklahoma.

Quackenbush, Karen: West Salem, Wisconsin.

Ramey, Ralph: Yellow Springs, Ohio.
Ransom, Christina & Shani Darden: Plattsburgh, New York.
Rappeport, Sally: Brooklyn, New York.
Raver, Jackie: Salem, Illinois.
Reese, Pat: West Hartford, Connecticut.
Reese, Randy: Newark Valley, New York.
Reichert, Dale: Hanover, Pennsylvania.
Riel, David: Cincinnati, Ohio.
Robinson, Clara: Perkasie, Pennsylvania.
Rongish, Kathy: Unerwood, Iowa.

Sanders, Mary: Morrison, Missouri.
Schmitz, Margaret: Fond du Lac, Wisconsin.
Scott, Millicent: Casper, Wyoming.
Seibel, Margaret: Fond du Lac, Wisconsin.
Senghas, Joan: Mount Clemens, Michigan.
Shane, Vince: Bloomington, Minnesota.
Siegel, Russell: Danbury, Connecticut.
Sinclair, Jean: Harlys ville, Virginia.
Sinclair, Mary Lu: Falls Village, Connecticut.
Smith, Leslie: Citrus Heights, California.
Smith, Marion: Lyndonville, New York.
Smith, Trudy: Mumford Cove, Noank, Connecticut.
Snyder, John: Greenville, South Carolina.
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.
Swanson, Arthur: Hartland, Wisconsin.
Swanson, Elaine: Pickett, Wisconsin.

Teed, Lanceil: Wichita, Kansas.
Teraguchi, Sonja: Cleveland, Ohio.
Tewksbury, Jesse & Chloe: Kennebunkport, Maine.
Thames, Bov.: Bay City, Texas.
Thomas, Bill: Springfield, Missouri.
Thomas, Corrine: Apalachin, New York.
Thompson, Amy: Stoneboro, Pennsylvania.
Thweatt, Aleda: Austin, Texas.
Toomsalu, Eva: Pickering, Ontario.
Totton, Larry: Granger, Iowa.
Tribo, Mathew: Washington, West Virginia.

Unick, Caroline: Houston, Texas.
Urquhart, Norah & Fred: Toronto, Ontario.

Voorhis, Annette: Lansing, Michigan.

Watland, Sarah: Leawood, Kansas.
Wenny, Karen: Hockessin, Delaware.
Wesselman Park Nature Center: Evansville, Indiana.
Williams, Betty: Kent, Ohio.
Wilson, Audrey: Cobourg, Ontario.
Wilson, Keith: Corvallis, Oregon.
Wilson, Roger: Moline, Iowa.
Wood, Douglas: St. Albans, West Virginia.
Woodcock, Alice: Upper Montclair, New Jersey.
Woythal, Debbie: Leawood, Kansas.

Yang, Holly: Shawnee Mission, Kansas.
Yeager, Dorothy: Pearsall, Texas.
Zewa, Cyril: North Huntingdon, Pennsylvania.
Zimmerman, Helen: Vineland Station, Ontario.
Zimmerman, Walter: Mesquite, Texas.