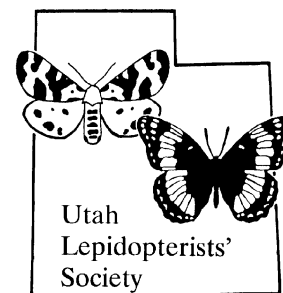


Utah Lepidopterist

Bulletin of the Utah Lepidopterists' Society



Volume 5 - Number 2

SPECIAL ISSUE

October 1995

Hogle Zoo's Butterfly World: Smashing Summer Success

Following in the footsteps of Butterfly World in Coconut Creek, Florida and at Marine World Africa USA, in Vallejo, California, Utah's Hogle Zoo has dazzled literally tens of thousands of onlookers this summer with its own version of "Butterfly World."

On June 10, 1995, after several months of dedicated planning by Director Lamar Farnsworth and General Curator Kimberly Davidson, Hogle Zoo introduced BFW to the public. Since its opening, thousands of impressed Zoo spectators have passed through with nothing but praise and wonder for BFW.

The Zoo's marketing officials did a fine job of introducing BFW by announcing its opening through local T.V. and Newspapers as well as putting up billboards all over town.

Butterfly World is a 3000 square foot greenhouse that houses hundreds of individual butterflies from dozens of North American species. The exhibit contains walkways so that spectators can enjoy butterflies fluttering in as natural a habitat as is possible. BFW provides for its butterflies by furnishing a temperature and humidity controlled environment that creates a suitable micro-habitat which also includes plenty of nectar plant sources such as *Buddleia*,

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U.L.S. OFFERS SUPPORT FOR BUTTERFLY WORLD

Editor's Note: The proceeding is a chronological recap of the support members of the U.L.S. have offered BFW as early as this February. Hopefully, both the staff of Hogle Zoo as well as members of the Utah Lepidopterists' Society have mutually benefitted from this relationship.

15 February 1995: Members Ray Evenson, Jack Harry, and Todd Stout introduce themselves to Hogle Zoo Director Lamar Farnsworth and General Curator Kimberly Davidson. The basics of the caring for live butterflies is discussed. Jack recommended to Lamar that he purchase, Butterflies of North America, by James A. Scott as a good initial reference for butterfly identification and life histories. Ray recommends which commercial sources might be appropriate for the purchase of live butterflies, and Todd commits to writing a summary of the recommendations given at the meeting as well as local collecting and rearing opportunities. See related letter on pgs. 7,10-16.

19 April 1995: After having been contacted by Lamar Farnsworth, Col. Clyde Gillette spends a day with photographers from the Advertising Agency: Fotheringham, Jensen, Christensen, and Newbold, of Salt Lake City, in order to shoot

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Hogle Zoo's Butterfly World: Smashing Summer Success ct.

Lantana, and *Bougainvillea*, as well as other sources such as rotting fruit trays and the ever-so-famous "butterfly balls."

Setting aside the option of rearing and capturing local butterflies--See Page 7--Farnsworth opted to purchase butterfly pupae of North American species from any of three Florida vendors. The species flying at BFW this summer are as follows: *Battus philenor*, *Battus polydamas*, *Papilio cresphontes*, *Papilio palamedes*, *Papilio troilus*, *Papilio polyxenes*, *Phoebis philea*, *Eurema nicippe*, *Phoebis sennae*, *Agraulis vanillae*, *Anartia jatrophae*, *Limenitis archippus floridensis*, *Dryas julia*, *Heliconius charitonius*, *Danaus gilippus*, *Danaus plexippus*, *Marpesia petreus*, *Polygonia comma*, *Polygonia interrogationis*, *Siproeta stelenes*, and *Vanessa cardui*.

Passers through Butterfly World seem most interested with the Emerging Box where received pupae from Florida are prepared by Gina and Chris to hang until they eclose. Oddly enough spectators keep asking, "Are those alive?"; even though the sign above the Emerging Box says, "Live Chrysalis."

One of the more intriguing aspects of Butterfly World is how differently certain species have adapted to this indoor facility. Although fond of nectar sources like *Buddleia* and *Lantana*, Upper Sonoran species such as *Danaus plexippus* and *Vanessa cardui* seemed to spend their free time on the window wells trying to escape rather than adapting to their environment. This is not too much of a surprise considering that both of these species are highly wary and migratory. What was puzzling was that localized Lower Sonoran species such as *Limenitis archippus floridensis* and *Siproeta stelenes* also seemed to scheme with the Monarchs and Painted Ladies in attempting to escape. (Ironically, one wild, local *Papilio rutulus* was spotted trying to enter Butterfly World from the outside.)

On the other hand, Sub-tropical species like *Battus polydamas*, *Battus philenor*, *Phoebis philea*, *Papilio cresphontes*, and *Anartia jatrophae* adapted very well to the exhibit. These species were often seen mating as well as spending a lot of time flying around and nectaring on flowers.

In fact, the Zebra Longwing, *Heliconius charitonius*, seemed to be the most well-adapted and visibly aesthetic of all the rest of the butterflies. Dozens of Zebras could be seen at any given moment gayly flying around the tops and through the *Ficus* trees as if they owned the place. What a sight to behold! Gina Phillips agreed; jokingly stating that next year BFW ought to exclusively order *charitonius* and call the exhibit, "Zebra World." If it weren't for the potential confusion between the Zebra Longwing and the black and white striped horse from Africa, the Hogle Zoo just might have considered it.

The Editor

U.L.S. OFFERS SUPPORT FOR BUTTERFLY WORLD (Cont.)

19 April 1995ct.

three separate color advertisements to be used as large Billboards appearing during July and August in the Salt Lake City and vicinity. These three billboards will show an aesthetic array of mounted butterflies with a clever catchphrase promoting BFW--See Color Photo on Page 4. The requested pinned specimens, which were loaned to FJC&N by Todd Stout, were *Papilio multicaudatus*, *Papilio bairdi*, *Papilio indra minori*, *Papilio cresphontes*, *Battus polydamas*, *Eurytides marcellus*, *Anthocaris cethura pima*, *Zerene eurydice*, *Phoebis philea*, *Phoebis neocypris*, *Anteos clorinde*, *Atlides halesus*, *Limenitis archippus*, *Limenitis lorquini*, *Limenitis astyanax arizonensis*, *Siproeta stelenes*, *Speyeria idalia*, *Speyeria diana*, *Agraulis vanillae*, *Heliconius charitonius*, and *Danaus gilippus*. The underlined species were the ones ultimately chosen to appear on the three billboards.

8 June 1995:

Hogle Zoo holds Open House for VIP and other contributing parties for BFW. President John Richards and Ray Evenson attend. They meet with Education Assistant Gina Phillips and offer their commitment to ongoing support for Butterfly World. Ray's children, Brooke and Jessie, later became volunteer workers for BFW--See Gina's related article on Page 5.

15 June 1995:

Todd Stout donates 16 pupae of *Vanessa cardui* found as larvae in his backyard. He offers advice on placing larval hosts such as *Passiflora*, *Asclepias speciosa*, and *Citrus* in the exhibit. Considering that many of the BFW's butterflies have been seen mating, females might as well have the opportunity to oviposit on their larval host plants.

11 July 1995:

Kimberly Davidson is advised by Gina that one of the butterfly species is ovipositing on *Lantana*--which is odd considering that *Lantana* is not considered by Scott as a larval host plant for any North American Butterfly. U.L.S. members identify young larvae as *Anartia jatrophae*.

15 July 1995:

Both John Richards and Todd Stout visit BFW. John donates several hundred larvae of *Nymphalis milberti* and explains how to rear on *Urtica dioica*. John also donates live males of *Papilio rutulus*. Todd donates 11 pupae of *Polygonia satyrus*, *Vanessa atalanta*, and *Vanessa carye*. Todd also brought by some *Plantago lanceolata* leaves for BFW employees rearing *Anartia jatrophae* in the lab so that they don't use up all of their exhibit indoor *Lantana*.

24 July 1995:

Todd drops by 15 more *satyrus* pupae. Female *Phoebis philea* oddly lay their eggs on *Bougainvillea* leaves--whose flowers are a favored nectar source; but not a larval source. Not surprisingly, the larvae refuse the young *Bougainvillea* leaves and die. A few *Marpesia petreus* larvae are found by Chris and Gina on *Ficus* trees. *Vanessa cardui* females are now laying on *Lantana*; but, *Anartia jatrophae* apparently now isn't.

4 September 1995:

Hundreds of patrons visit Butterfly World on Labor Day. U.L.S. members' Jack Harry and Jacque Wolfe visit BFW. Photos of BFW are taken for the bulletin, Utah Lepidpterist. Gina advises that BFW is being held open throughout September; instead of closing today (Labor Day) as was originally planned.

9 September 1995:

U.L.S. Society meeting held at Utah Museum of Natural History. Gina Phillips provides members with an exciting slide presentation of BFW. U.L.S. members are the first to offer volunteers for Butterfly World. Later that evening, John Richards gives a Slide presentation on Lepidoptera to Hogle Zoo BFW volunteers, Junior Zoo Keepers, and their parents. John demonstrated the basic differences between butterflies and moths. John also discussed morphological differences between gender.



(Upper Half) Poster reproductions of the three Billboards advertising Butterfly World.
(Bottom Right) Small poster promoting ULS meetings for those who would like learn more about butterflies.

WORKING WITH VOLUNTEERS IN BUTTERFLY WORLD
GINA PHILLIPS
EDUCATION ASSISTANT
UTAH'S HOGLE ZOO

INTRODUCTION

The 1995 "audience attention grabber" at Utah's Hogle Zoo has been the newly built Butterfly World. At any one time, this 3000 square foot exhibit displays 400 to 500 free flying butterflies. Butterfly World has certainly "grabbed" the public's attention! The staff is treated to daily comments like, "This is the neatest thing I've ever seen!" or, "The Zoo has really outdone itself this time." and, "I don't know how the Zoo can top this one!" Needless to say, the morale is very high in that building.

VOLUNTEERS

Relying only on paid staff or utilizing volunteers was debated. The volunteers have no place to sit down in Butterfly World. Would volunteers continue to come if there were no animals to handle? Other Docent programs at the Zoo had trouble maintaining the number of volunteers to make the programs successful. And so on, and so on... Because volunteers make it possible for the public to have personal contact with a Zoo representative, the Zoo made the decision to utilize another volunteer group.

The Utah Lepidopterists' Society was contacted, and they became the first volunteers for the Butterfly World exhibit; giving us information on raising pupae and offering their opinions on the plants and the exhibit. A retired entomologist got involved, and in addition to drafting the first version of a manual for BFW volunteers, he spends two afternoons a week in BFW talking to the visitors! As word of the butterfly house spread, many people began contacting the Zoo and offering their services.

The age group the Zoo decided to target for volunteers in BFW is people 14 years and older. We were overwhelmed by the amount of interest this program has generated! There were over 75 volunteers within the first six weeks! Many of the BFW volunteers are butterfly enthusiasts; but, there are quite a few people who joined the ranks of BFW volunteers because they were impressed with the exhibit.

Because the BFW volunteers are required to stand up during their shift, the shifts are kept short at two hours a shift. The shifts run when the Zoo opens from 9:00 A.M. until 3:00 P.M. The 11:00 A.M. - 1:00 P.M. shift covers the keeper's lunch hour. Only adults can work on this shift. The full-time staff goes home between 3:30 and 4:00 P.M., and a part-time staff member comes in to close the area. A late afternoon volunteer shift is currently being attempted, but it is difficult for the part-time staff, (usually high school or college students) to supervise the volunteers. Next year this shift won't be available.

Formal classes were not held this year for the volunteers. The "mentor" training method is being used. The BFW staff worked extensively with the volunteers the first month. After that, the staff relies a great deal on the "seasoned" volunteers to train new volunteers. A one day workshop is planned for next spring to give volunteers general information as well as teach them interpretation techniques.

EDUCATIONAL TECHNIQUES

The staff at Butterfly World tried many creative educational approaches. Some worked well and others didn't. One method allowed the volunteers to hold a butterfly feeder with butterflies feeding on it. The idea was that the *staff* would place one or two butterflies on the feeder and give it to the volunteer. The volunteer would show the public the butterflies feeding, and talk about how they use their proboscis and feeding behaviors. The drawback was that when the butterflies flew off, the volunteers would often try to chase down more butterflies, sometimes damaging butterflies and plants. Besides, we wondered if we were sending a mixed message: The public wasn't supposed to touch them; yet the volunteers were holding them.

The volunteers are set up in strategic places along the pathway in Butterfly World. On a busy day, volunteers can be stationed at each of the curves in the pathway. The responsibility of the volunteer at the first curve is to pleasantly give a brief, informal overview of the rules and make sure the visitors don't bring in strollers or wagons. The next station is at the emerging box. Here, the volunteers explain metamorphosis, the emerging process, and how the chrysalis uses camouflage. They conduct informal conversations and answer questions. Stations near a fruit feeder and one of the popular "nectaring" spots take the place of the feeding trays. The volunteers are able to identify many of the butterflies to the public as they are "nectaring." The final station, near the exit, allows the volunteer to watch for stow-aways on people's clothing. On a busy day, it is nice to have all of the stations filled; but, on a slow day, this many people is not necessary.

All of the volunteers provide "butterfly rescue." The butterflies will often land on the walkway where they are in danger of getting squashed. After receiving training on how to pick up the butterflies without injuring them, the volunteers will rush over to save the butterfly from being stepped on. The BFW logo cover the back of the uniform T-shirt, alerting the visitors that the person bending over the butterfly is supposed to be picking it up.

BFW volunteers are encouraged to approach the Zoo visitors and offer information about butterflies, plants, and the exhibit. Part of their job is to chat with our visitors and answer questions. The volunteers are encouraged to continue learning about butterflies by reading, writing information, working in Butterfly World, and through educational programs offered on television.

CONCLUSION

Using volunteers in Butterfly World has been a positive experience at Utah's Hogle Zoo for the staff, the volunteers, and most importantly, the public. This program is successful for several reasons.

The age group is important. By giving teenagers a chance to educate, they begin to learn responsibility. Plus, they can teach some kids that adults can't reach. The interaction between adult volunteers and younger volunteers has been enriching for both age groups.

The enthusiasm of the staff has been an important factor too. Because the staff is excited about what is happening, the volunteers get excited and enthusiastic. When the volunteers are excited, the public gets excited. It is contagious, and its benefits can't be measured!

LETTER TO UTAH'S HOGLE ZOO

Editor's Note: *At the request of Zoo officials, Lamar Farnsworth and Kimberly Davidson, the following letter was written about butterfly rearing and collecting opportunities in the Salt Lake area. As it turned out, the Zoo opted only to purchase live pupae from vendors in Florida for Butterfly World. However, the proceeding letter might be a useful guide for those new to the hobby who would like to know more about getting started in collecting and/or raising Utah butterflies.*

1 Mar 1995

Dear Lamar and Kimberly:

It was good to meet with you recently and discuss what the Utah Lepidopterists' Society can do for your in-house live butterfly exhibit. The purpose of this letter is to give you recommendations of, in addition to your own purchasing of North American Butterfly pupae, what Utah butterfly species would be available for the Hogle Zoo to collect and/or raise in 1995. To put it succinctly, it probably would be in your best interest to employ a light butterfly rearing strategy this year--keeping in mind the learning curve and the limitations of your own resources. Because you would be rearing light at first, it also would be in your best interest to collect live butterfly adults as early as mid-March in order to start building your butterfly inventory in your micro-habitat by April.

This letter will chronologically--from March to September--explain how these tasks would most easily be accomplished for this year. This letter will also explain what materials will be needed to see to this end. The criteria for these recommendations for obtaining Utah butterfly species will be ease of capture, distance to habitat from Hogle Zoo, numbers available, and, in the case of butterfly immatures, number of generations (or broods) per year, ease of obtaining larval host plant, ease of obtaining immatures, and larval resistance to disease.

The content of this letter, obviously, is very extensive. There, undoubtedly, will be aspects to these recommendations which might be overwhelming, or, at best, unclear. Don't worry. I, as well as other members of The Utah Lepidopterists' Society, am willing to assist you in any way I can. This includes defining unclear phraseology, showing you how to collect, taking you to suitable collecting spots, demonstrating rearing techniques, and following up in any other way we can.

NECESSARY WRITTEN MATERIALS:

In addition to the Butterflies of North America by James Scott, I would also recommend the book, Butterflies of the Rocky Mountain States by Clifford D. Ferris and F. Martin Brown. This book should be available at the University Bookstore and/or the BYU Bookstore. This book will help you in identifying the Utah Butterflies to be recommended. It discusses habitat, distribution, and, most importantly, has representative photographs. Another book I would recommend you purchase for plant taxonomy is called Weeds of the West by Whitson, Burrill, and five others. I have already purchased a copy for you. The price is \$19.50. This book shows color illustrations of many of the Western weeds that butterflies utilize for nectar and larval sources. Also, if you're

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UTAH'S HOGLE ZOO BUTTERFLY WORLD



U.L.S. Member Jack Harry poses in front of the entrance of BFW.



Adult Zebra Longwing nectaring.



The Emerging Box. Visitors can eye-witness butterflies emerging from pupae. BFW Staff release newly emerged imagos onto nearby plants and flowers.

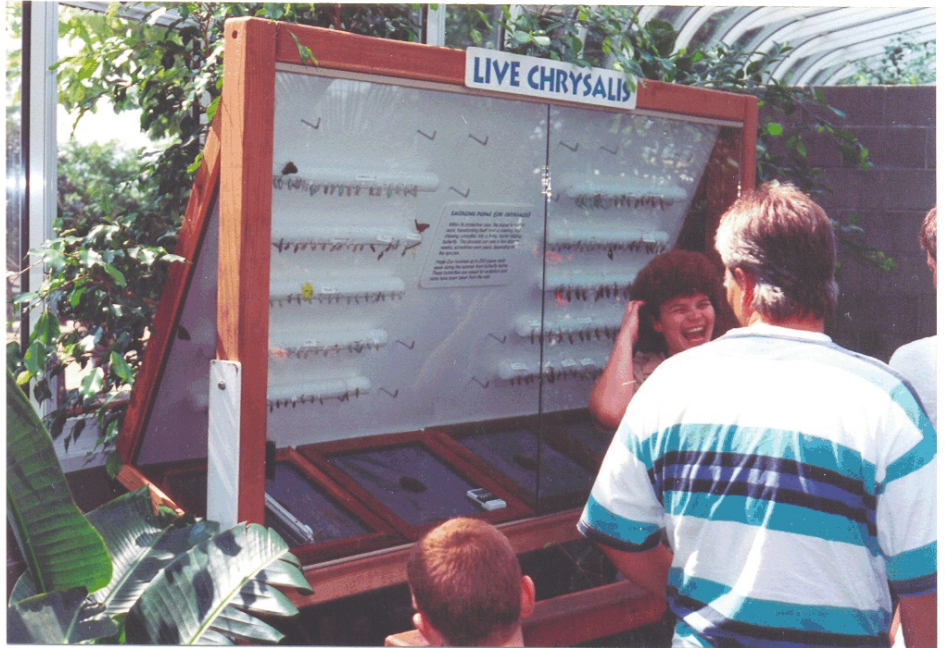


Hogle Zoo did a fine job at providing a great diversity of flora for butterflies to enjoy.

UTAH'S HOGLE ZOO BUTTERFLY WORLD



Danaids enjoying nectar sources:
(Top) Butterfly balls contain honey-water solutions for *gillippus*. (Bottom) Monarchs and Queens on *Lantana*.



Staff member Gina Phillips entertains BFW onlookers at the Emerging Box.



Visitors enjoying the exhibit. This is near the area where *Phoebis philea* were laying eggs on *Bougainvillea*.



Female *Papilio palamedes*.

interested in getting a good book which identifies most all of the world's butterflies, then I would recommend Butterflies of the World by H.L. Lewis. Any of these recommended books, if not available locally, can be ordered through Flora and Fauna Books, P.O. Box 15718, Gainesville, Florida, 32604.

I would also recommend you quickly contact Bioquip Products, 17803 LaSalle Ave, Gardena, CA, 90248-3602, (310) 324-0620, and request a copy of their 1995-96 or 1992-93 Catalog--whichever is available. Many of the products they carry will be necessary for you to obtain ASAP, if you are planning on collecting and raising butterflies.

NECESSARY MATERIALS FOR COLLECTING BUTTERFLIES:

Obviously, the first item you will need for collecting adult butterflies is a reliable butterfly net. Pages 38-43 of the Bioquip Catalog is dedicated to Butterfly nets. I would recommend item number 7615NA 15" Medium Sweep Insect Net. Their price is \$11.25 plus freight. The easiest way to transport live butterflies from your collecting spot back to the zoo is ungummed glassine envelopes. These glassine envelopes are available at most Stamp Shops or through Bioquip. They are re-usable. I would recommend you order 100 of the 2"x 3.75" (Bioquip item No. 1130A) envelope and 100 of the 2.75" x 4.25" (Bioquip item No. 1130B) envelope. The combined cost at Bioquip for these envelopes would be \$2.55 plus freight. It is necessary for a collector to wear a shirt with a pocket to keep the envelopes, which will contain the collected, live butterflies, for transfer from the field to the Zoo. If you want to get fancy, Bioquip sells a "Field Vest", which will hold all sorts of paraphernalia, on page 58 of their catalog for \$45.00.

NECESSARY MATERIALS FOR REARING BUTTERFLIES:

As stated earlier, you will probably want to get involved in a limited amount of rearing in 1995 to get a "feel" for it. To start up, I would recommend the following materials: (One) 10 Gallon Aquarium (No kit--Aquarium only.) Petsmart sells them for the cheapest--around \$9.00 a piece. (Two) 9 1/2" x 11 3/4" glass lids for the aquarium. We can donate these to you free of charge. (Twenty) pint tubs (item # S1651-A) and twenty accompanying lids. These are available at Industrial Container and Supply Company at 3752 West 1820 South, Salt Lake City (972-1561) for about \$0.28 per tub and lid together. (Six) Rubbermaid 7 Cup (1.7 liter) Rectangular Servin' Saver containers. These are available at any supermarket. Harmon's and Smith's seem to have the best pricing on them. (One) each of the following three items from Bioquip: Teasing needle (item #4752), teasing needle (item #4751), and forceps (item #4732). The combined costs for these last three items from Bioquip is \$2.75 plus freight. (Eight) four ounce plastic elongate bottles w/o lid. I can donate these free of charge. You will also need to build a 6"x 6"x 6" cage in order to get females of certain butterfly species to lay eggs. You'll need 12 each 6" wooden sticks or dowels that are 1/2" diameter. These wooden dowels need to be nailed together to form a cube. Then, take (five) 6"x 6" squares of nylon screen and staple gun them to the cage. The cost to build such a cage is about \$5.00. You will also need six or so flower vials--also called water picks. These small, green vials are available at any florists for about \$0.20 a piece. The last item is a 1' by 3' tricot butterfly sleeve with drawstring. I can give you one of those as well.

MARCH

Collecting Adult Butterflies:

In Northern Utah, three of the best general places to collect large numbers of a variety of butterfly species are Mountain Canyons, Alfalfa Fields, and Valley River Drainages and Lakes. During the month of March, the best place for you to collect would be the mouth of Dry Canyon, and the walking/bicycle trail at City Creek Canyon. The first adult butterflies to appear in Utah come from the large family called Nymphalidae. Species in this family of the genera *Nymphalis* and *Polygonia* spend the winter as adults. What that means is, instead of needing two or three weeks of warm spring weather to develop in their chrysalides into adult butterflies, these overwintering nymphalid adult butterflies need only two or three days of warm weather in February or March in order to start flying. This year, on February 3rd, on the third consecutive day of warm winter weather, many adults of *Nymphalis milberti* (Milbert's Tortoise Shell) and *Nymphalis antiopa* (The Mourning Cloak) were spotted and collected at the mouth of Dry Canyon. Once you obtain the necessary materials to collect, you can obtain specimens of these two species of butterflies immediately. The best way to collect any or all of these overwintering nymphalids is to collect either at the mouth of the canyon, or to walk right up the gully of the canyon. Many times these butterflies will come right to you.

Pieris rapae, a little white butterfly which easily is the most common butterfly in the United States starts flying in Utah towards the latter end of March. In addition to being available in Canyons like Dry Canyon and City Creek Canyon, this little butterfly in the pierid family is also found in disturbed places in and around Salt Lake City.

Best rearing opportunities:

During the last part of the month of March, the only practical rearing opportunity is *Pieris rapae*. You will probably only want to rear *Pieris rapae* if you can't get enough wing caught specimens from the field. Between March 30 and April 15, it should not be difficult to obtain three or four females of this butterfly. Since finding immatures of *Pieris rapae* is surprisingly difficult, I would recommend you take these wing-caught females and attempt to entice them to lay eggs, so that you can raise the larvae. I will explain how this is to be accomplished. First, take a few cuttings of its host plant, *Cardaria draba* (Common Whitetop) and place them in one of the small (app. 1 ounce) flower vials filled with water. Place the vial and the plant cuttings inside of the cage you built. Place the female butterflies in the cage as well, and place the cage near a window that has access to a few hours of sunlight. (If I'm losing you, I can demonstrate this much easier than explain it.) Another option of getting eggs of *rapae* is to place the cage directly over one of the host plants outdoors. Place the females in the cage and see what happens. Either way, the females will lay eggs for you. Remove the eggs from the plant and place in one of the pint containers purchased from Industrial Container and Supply. Poke holes in the top of the container. (Butterfly eggs seem to die in air-tight containers.)

In four days, the eggs will hatch. Place as many as thirty young larvae--mind you, these are itty bitty--on fresh cuttings of *Cardaria draba* (Hoary Cress)--page 222 of Weeds of the West --and place the plant with the larvae in one of your 1.7 liter rubbermaid containers. In the early spring, *Cardaria draba* is common in disturbed areas. It is already starting to come up in my yard here in Rose Park. Remove the larvae and put on fresh plant every 72 hours. Butterfly larvae go through five moults or instars as they grow. (They shed their skin five times.) When a larva first hatches, it is considered a first instar. After its first moult, or shedding of skin, it becomes a second instar. When your *rapae* larvae reach third instar, reduce the number of larvae per container to 15. When they reach fourth instar, reduce the number of larvae per container to 10. When they reach fifth instar, reduce to five larvae per container. After four or so days of being fifth instar, your larvae will stop eating and attach themselves either to the container or to the plant. At this point, they will shed their skin for the last time and form a chrysalis. After the chrysalis has hardened after a day or so, place it in a shady place until it can emerge. It should emerge about eight days after it pupates. Then, turn them loose in your butterfly exhibit. **Note: Now that I have explained the life cycle of a butterfly, I should be much less verbose in explaining how to rear other speciesf butterflies.**

APRIL

Collecting Adult Butterflies:

By mid April, Northern Utah should be hopping with adult butterfly activity. The best places to collect are still Dry Canyon and City Creek Canyon--right up the gullies. In addition to these canyons, your own Emigration Canyon should have butterflies flying. Some of the butterflies available in these canyons are as follows: *Papilio zelicaon*, *Incisalia fotis*, *Celastrina argiolus*, *Phyciodes mylitta*, *Pieris sisymbri*, *Pieris protodice*, *Pieris napi*, *Anthocaris sara*, *Euchloe ausonides*, *Vanessa cardui*, *Nymphalis antiopa*, *Nymphalis milberti*, *Polygonia satyrus*, and *Polygonia zephyrus*. Please see Butterflies of the Rocky Mountain States to see what these look like. Some skippers and moths should also be flying by mid-April; however, I am not familiar with their varieties.

In the city itself, another good place to collect is in alfalfa fields. By April 15, there should be pretty good numbers of *Colias philodice*, *Pieris protodice*, *Colias eurytheme*, and *Pieris rapae* on the wing. You should be able to collect at least twenty or thirty butterflies in a couple of hours on a nice, sunny day. (Cloudy weather causes butterflies to cease flying--except *Pieris rapae*.)

Best rearing opportunities:

In April, *Pieris rapae* is still a good rearing opportunity. Towards the end of April, you might be able to find eggs of *Vanessa cardui*. This is the same butterfly that migrated through Utah so heavily in the spring in 1991 and 1992. *Vanessa cardui* feeds on Thistles--especially *Cirsium undulatum* and *Cirsium arvanse*--pp. 108 and 116 of Weeds of the West. It is not too hard to find eggs of this butterfly on its host plant. You can find them in canyons and disturbed areas. Raising them is fairly simple. If you find ova (eggs), place them in one of the pint containers that has small holes poked in the top. (Five or six holes should have been pierced through the lid with one of the teasing needles.) When the ova hatch, place the young first instar larvae on a freshly cut thistle leaf in one of your Rubbermaid 1.7 liter containers. **Caution: Thistle leaves have thorns and can puncture skin!!** **Wear Gloves when handling thistles and Stinging Nettle.** Change the larvae every 72 hours and replace them to fresh thistle leaves. Be sure to remove any frass (caterpillar poop) from the container. When the *cardui* reach fifth instar, and decide to pupate, they will either hang as a chrysalis from the top of the container lid, or from the leaf itself. When the butterfly emerges eight to ten days later, turn it loose in your live butterfly exhibit.



MAY

Collecting Adult Butterflies:

In addition to the canyons already mentioned, Millcreek Canyon and Lambs Canyon become outstanding collecting spots by the middle to latter part of the month of May. Millcreek Canyon is accessible by taking I-215 to 3800 South; and then east up the canyon. Unfortunately, Millcreek Canyon currently charges an entry fee of \$2.00 at the mouth of the canyon. Lambs Canyon, which is perhaps even better for collecting than Millcreek Canyon, is accessible through Parley's Canyon. After driving up the canyon for about 1 mile, stop your vehicle at a turn out, and look for butterflies.

In addition to the canyon butterflies mentioned in April, *Papilio rutulus*, *Papilio eurymedon*, *Papilio multicaudatus*--Utah's largest butterfly, *Colias occidentalis*, *Coenonympha tullia brenda*, and a host of blues (Lycaedinae), checkerspots (Nymphalidae), and other moths and skippers are available. The best time to arrive at these spots in order to collect is around 10:30 A.M.

Best rearing opportunities:

If you didn't have time to find eggs and/or young larvae of *Vanessa cardui* last month, then finding larger larvae of this species might be a viable alternative for you in May. Finding larvae of *cardui* is relatively easy; if they're available. Second through fifth instars of *cardui* like to build a silk nest by attaching the ends of the leaf together. The larger the caterpillar, the larger the nest. After a little practice, spotting these nests can be easy. The best places to find larvae of *Vanessa cardui* is either in any major canyon--Lambs, Millcreek, Big Cottonwood, etc., or in disturbed places in the Salt Lake Valley where thistles grow.



JUNE

Collecting Adult Butterflies:

Considering sheer numbers of butterflies, I would concentrate on collecting in Alfalfa Fields in June. The only problem is heat and exhaustion. However, there should be large numbers of the aforementioned alfalfa field species--*Colias philodice*, *Colias eurytheme*, *Pieris rapae*, and *Pieris protodice*. Alfalfa fields have also been known to yield the following species: *Pyrgus communis*, *Phyciodes mylitta*, *Phyciodes pulchella*, *Lycaena helloides*, *Strymon melinus*, and *Coenonympha tullia ampelos*. However, if sheer numbers is not as much a concern as is enjoying the experience, then I would recommend you go right back to Lambs and Millcreek Canyons to collect. In fact canyons like Lambs and Millcreek should have good collecting all the way through the end of August. During the month of June, several fritillaries in the genus, *Speyeria*, begin to take flight. One of Utah's most gorgeous species, *Limenitis weidemeyeri latifascia* also starts to fly in June in these canyons. Males of this species can be taken at their "stations" as you venture up the canyon. Other species that start flying in June are *Parnassius clodius*, *Pieris napi*, *Boloria kriemhild*, and others.

Best rearing opportunities:

The skin irritating plant, *Urtica dioica* (Sting Nettle) surprisingly yields an opportunity to raise several species of butterflies in June. The thought of this, to the new butterfly adventurer could be quite idiotic. However, with proper precautions, rearing butterflies on Stinging nettle can be quite productive. In June, you should be able to find larvae of *Vanessa atalanta*, *Vanessa carye*, *Nymphalis milberti*, and *Polygonia satyrus* on Stinging Nettle. The best opportunity is in finding larvae of *Nymphalis milberti* because of the fact that their larvae are gregarious--if you find one larva, you'll likely find 70 of his brothers and sisters as well. The best precaution in handling stinging nettle is to bring forceps and use gloves. Like *Vanessa cardui*, *Vanessa atalanta* and *Vanessa carye* build nests out of the leaves to protect themselves from predators. These nests can be easily spotted by a collector. *Vanessa atalanta* and *Vanessa carye* build their nests by taking the sides of the leaves and lifting them upward and silking them together on top. On the other hand, *Polygonia satyrus* larvae make their nests on Stinging Nettle by breaking the leaf vein at the base and silking the sides of the leaves downward. Differentiating these two nests is simple.

Raising any of these species is as simple as raising *Vanessa cardui*. It might be prudent to replace the food plant every 48 hours instead of every 72 hours because Stinging Nettle seems to deteriorate faster than Thistles in a closed lid container at room temperature. The best places to find these caterpillars on the host plant again is Millcreek Canyon and Lambs Canyon. It would be best if I showed you where to go to find the best spots.

JULY

Collecting Adult Butterflies:

Same strategy as June. Look for *Speyeria* species to become much more plentiful in Lambs and Millcreek Canyons in July. Also, in disturbed, grassy areas in the Salt Lake Valley, you should start to be able to find the large satyrid, *Cercyonis pegala*. A good place to collect them is in the Alfalfa Fields located southeast of the intersection of 1700 North and 2200 West in Salt Lake City. These same fields should be a good place to find Monarch butterflies towards the end of August and through September.

If you feel ambitious, one of the best places to collect in July is taking Skyline Drive in Bountiful all the way up to Bountiful Peak at 9300 feet in elevation. Although time consuming, the drive is breathtaking, and the diversity of butterflies flying right there at the parking lot at Bountiful Peak is extraordinary. In addition to the vast array of butterflies flying in Millcreek and Lambs Canyons, you should also be able to find *Lycaena rubidus*, *Parnassius phoebus*, *Speyeria hydaspe*, *Papilio indra*, and others, including the gorgeous moth, *Hemileuca herra*.

Best rearing opportunities:

Previous opportunities for vanessids and nymphalids on thistles and nettles will still be available during July if you are interested. If you feel daring, there might be another gorgeous butterfly you might consider rearing in July. It is *Limenitis weidemeyeri latifascia*. There are two general ways to rear the Weidemeyer's Admiral. One, find larvae. Two, collect live females, and get them to lay eggs. For the most part, finding larvae of *weidemeyeri* is quite time consuming. However, there is one spot at Millcreek Canyon where I found quite a few last year. It is located at the "Terraces" Picnic area a few miles up the canyon. On or around 20 July, I will be happy to go up there for you and find larvae. The other way to rear *weidemeyeri* is to collect females and place them in the tricot sleeve on an aspen branch that is exposed to partial sunlight at an elevation of 7500' to 8000' in Lambs or Millcreek Canyon. Hopefully, they will lay eggs and you can rear the larvae.

The best way to rear *weidemeyeri* larvae is to place two or three willow cuttings inside one of your four ounce plastic elongate bottles filled with water. Common weeping willow (*Salix babylonica*) will do nicely. Make sure that the willow cuttings aren't higher than the height of the aquarium. Using your teasing needle, gently place a larva on the tip of the willow leaf, and place the bottled willow cuttings with larva inside your 10 gallon aquarium, and keep the glass lids on top of the aquarium so that it is 99 percent air tight. Place no more than three small larvae on each willow cutting and place no more than three or four bottles in the aquarium. The purpose of the glass lids is to keep the willows moist. Willow branches dry up quite easily, and need high humidity in order to avoid desiccation. The necessary time to set up the aquarium is a little time consuming; however, the branches will only need to be changed and the aquarium disinfected about every six days. As the larvae grow, they can continue to feed on weeping willow or they can be switched to any cottonwood or aspen. This whole procedure is not as bad as it sounds. I will be happy to help you with this.

AUGUST

Collecting Adult Butterflies:

Millcreek Canyon, Lambs Canyon, Emigration Canyon, Bountiful Peak, alfalfa fields (in general), and the alfalfa fields just southeast of 2200 West and 1700 North in Salt Lake City are still good collecting spots in August. The latter should start yielding adult specimens of the Monarch Butterfly-which would be a delightful addition to your exhibit this month.

Best rearing opportunities:

One of the most common hairstreaks, *Strymon melinus*, is available as larvae during the latter part of July and into August. One of its many larval host plants, *Eriogonum racemosum*, is what it uses behind the Holiday Gun Club in Holiday. Finding and raising these larvae is not difficult. However, I have never reared them myself. For more information about rearing *melinus* at this locality, please contact Steve Sommerfeld at 261-4270.

SEPTEMBER

Collecting Adult Butterflies:

With autumn fast approaching, the productivity of canyons begins to drop off considerably during September. However, there are new broods of the overwintering nymphalids, *Nymphalis antiopa*, *Nymphalis milberti*, *Polygonia satyrus*, and *Polygonia zephyrus* that are freshly emerging during this month. Although Salt Lake County is its northern limit, *Adelpha bredowi* has a strong flight during September. The best place to collect *bredowi* in Salt Lake County is probably Big Cottonwood Canyon. However, Utah County is much more productive for *bredowi* in Provo's Rock Canyon and Slate Canyon. It is possible to collect quite a few males of this butterfly in these dry canyons as you walk up the gullies about 1/2 to two miles from the mouth of these canyons.

Best rearing opportunities:

Perhaps a nice butterfly to rear in September is the Monarch (*Danaus plexippus*). As migrants of *plexippus* arrive in August, they start breeding and ovipositing immediately. The most common host plant for the Monarch is *Asclepias speciosa* (Milkweed). Although milkweed can be quite common in disturbed areas, the best place to find eggs and larvae of the Monarch butterfly is in moist areas where Russian Olive trees abound. The alfalfa fields adjacent to 2200 West and 1700 North in Salt Lake City have strands of Russian Olive trees growing with milkweed plants growing underneath them. Although patience is required, these milkweed plants are the best to look on for *plexippus* immatures. The reason for this is that Monarchs prefer to roost on Russian Olive trees during the heat of the day. When they do start flying again around 4:00 in the afternoon, females, obviously, will have more contact with the milkweed adjacent to these olive trees. As I said before, finding Monarch immatures does require patience. This is one activity that I should show you how to do in order to find confidence in doing it.

Todd L. Stout