

*Association
For
Butterflies*



A Rebuttal
to the Petition to have the Monarch Butterfly
Listed as Threatened under
The Endangered Species Act

Association for Butterflies (AFB) is an organization established to support butterfly farmers and hobbyists through education, mentoring, and research. We are dedicated to educating both farmers and the public in the area of conservation by promoting butterfly habitats and gardening, -and to provide resources that ensure quality raising practices for healthy butterflies.

Our membership reflects a wide variety of interests including professional butterfly breeders, hobbyists, educators, exhibitors, gardeners, and conservationists.

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Introduction

Association for Butterflies (AFB) is highly concerned that the listing of the Monarch butterfly as “threatened” will curtail or completely stop the activities of many of our butterfly breeders and hobbyists, which will in turn end up negatively affecting the Monarch butterfly population instead of helping it.

The Petition, which was filed in August of 2014 lists several reasons for having the Monarch butterfly listed as a threatened species. After a careful review by an AFB Action Team, it seems that the evidence supports more to a threatened habitat and migration of the Monarch, than the actual butterfly itself.

AFB and its members have a great appreciation for the Monarch. Since its inception, AFB has supported many efforts to help the Monarch butterfly. AFB offers extensive training programs to ensure safe and healthy breeding practices of Monarchs and other butterflies.

In addition to education AFB offers support to member conservation projects through our grant funding program. AFB believes in open sharing of information, education and support among all of our members to share, educate and support the public. Many of our members are educators who use their exhibits to educate and inform the public not only about butterflies but conservation in general. We agree with the overall concerns of the issues facing the Monarch butterfly today but do not feel that being listed as threatened is the best approach.

Our main concerns with listing the Monarch butterfly are the impact on butterfly farmers and hobbyists, limiting their ability to continue their mission to help the butterfly; the impact on US butterfly exhibits and the potential inability they will have to obtain Monarchs for their exhibit houses; the impact on urban schools unable to obtain larvae because they cannot collect them or obtain them from a butterfly farmer, and the impact on landowners who potentially destroy Monarch habitat out of fear of being regulated. We also feel this listing would detract from other species that are in greater need of being listed.

Daniel Rubinoff, a professor of entomology at the University of Hawaii specializing in insect conservation, wrote, *“The Monarch is one of the most widespread species of butterfly in the world. Its ability to find and colonize even isolated patches of milkweed — the host plant for their larvae — is renowned. An endangered listing should be reserved for animals much closer to the brink, such as the Mariana wandering butterfly, which hasn’t been seen in more than 20 years.”*

http://www.washingtonpost.com/opinions/the-monarch-butterfly-doesnt-need-so-much-help/2015/02/20/cd936d60-b887-11e4-a200-c008a01a6692_story.html

Butterfly conservation needs to embrace ALL butterflies including those butterflies that are in more dire need than the Monarchs.

There are eight (8) sections in Threat Factor #2 (Overutilization) on pages 73-74, that we consider to be inaccurate and unsupported by scientific data. The petitioners have made claims suggested as hypotheses and not research substantiated facts. Our objective is to point out those discrepancies, and correct the mistakes.

1. Monarchs are Sold as Pets

Petition States:

Monarchs are reared in captivity and sold commercially for entertainment and educational purposes, such as for live releases at events including weddings, graduations, and funerals. Monarch adults and caterpillars are readily available for purchase on the internet and from catalogues. Monarchs are also sold in kits as “pets.”

AFB Response:

Butterfly farmers do not sell Monarch caterpillars as pets. They are sold to schools and individuals for educational purposes so they can experience the true wonder of the metamorphosis first hand and can then release the butterfly into the wild. This service helps children and adults experience a deeper appreciation of the true magic of the Monarch butterfly than by studying about the Monarch in print or video. Additionally education with a conservation experience enables individuals to be more conscientious about our environment.

2. Diseases

Petition States:

Monarchs are very susceptible to diseases that can be transmitted among larvae, and mass production of Monarchs facilitates disease transmission. Release of infected Monarchs into the environment could threaten wild Monarchs with increased exposure and infection (Altizer and de Roode 2010, p. 25). There are currently no requirements that butterfly breeders follow specific disease-prevention protocols, or that outside agencies conduct routine tests of captive stocks for diseases. Commercially-reared Monarchs can be heavily infested with the parasite *Ophyrocystis elektroscirrha* (Oe) (see: http://www.learner.org/jnorth/tm/monarch/conservation_action_release.html), discussed in the Disease section of this petition, below. Monarchs reared in captivity can also carry other pathogens including *Serratia*, *Nosema* and cytoplasmic viruses (Ibid.).

AFB Response:

AFB has conducted an annual course, “Disease Prevention in Lepidoptera,” that has been given to over 300 students since 2007. It is an extremely in-depth course with weekly quizzes and a final exam at the end of the four-week course. The information in the course has been edited by Amanda Lawrence, Pathologist at Mississippi State and Dr. Leellen Solter, Associate Professional Scientist, Insect Pathology at Illinois Natural History Survey. In 2014, AFB began issuing a 3-year ‘Disease Seal’ for any student who successfully completes the course with the quizzes and final exam.

Beginning in 2011, AFB began a disease screening co-op with Mississippi State University through Amanda Lawrence, pathologist. Insects are sent to MSU and Amanda screens them for occluded virus, microsporidia, bacteria, and Oe, enabling farmers to discover and address disease issues before it causes major problems in their stock. (<http://afbeducation.org/butterfly-disease-screening-co-op/>)

In 2014, AFB started to construct an Oe screening program with the assistance of Sonia Altizer.

In 2015, the Oe screening program is getting its final touches and will be put into operation for the 2015 season for all farmers who raise Monarchs.

As shown above, AFB takes raising disease-free butterflies very seriously.

When Monarchs are raised in captivity, if pathogens such as Serratia, Nosema, and cytoplasmic viruses are not avoided by proper sanitization, these diseases will wipe out a farm's stock. If a butterfly farmer wants to be successful, they must use proper sanitizing methods. With any disease or parasite, if not kept in check, the farmer will not be in business long as the butterflies will not live past the larval stage. All stages cease to advance once a bacterial or viral disease enters into the farm's operation.

Since disease is found naturally in the wild, butterfly farmers must take great care that they do not bring disease in from the wild and introduce it to their clean stock.

3. Genetic Diversity and Deleterious Genetic Adaptations

Petition States:

The levels of genetic diversity among commercially-reared Monarchs are not known or regulated, and the release of large numbers of captive Monarchs with low genetic diversity threatens wild populations with deleterious effects such as inbreeding depression. It could also contribute to the accumulation of deleterious genetic adaptations due to the accumulation of alleles in captivity that are mal-adaptive in the wild, as has been observed with hatchery salmon. These deleterious adaptations can accumulate rapidly and can contribute to reduced survivorship of wild Monarchs (Frankham 2008).

AFB Response:

The petitioners state that "...the release of large numbers of captive Monarchs...threatens wild populations..." as if it were a fact. There have been no studies specifically with the Monarch to support such a claim. The study refers to small colonies of mammals in zoos that had been raised in captivity because their wild population was extinct, or close to extinction. The captive-bred colonies were larger than their wild counterparts. This scenario is not the case with the Monarch. As demonstrated below (in number 7) by scientific data, the wild population of the Monarch is much larger than the captive bred population being released.

Dr. Bruce Walsh, University of Arizona, Associate Professor, Department of Ecology and Evolutionary Biology, states: "Release of inbred Monarchs into the wild poses little threat, as if they are very feeble, they have little chance of mating. If they do mate, most of the effects of inbreeding depression (across many species) are from the fixation of deleterious recessives (for evidence on this point, see Chapter 10 in "Genetics and Analysis of Quantitative Traits" by Mike Lynch and myself), and hence when they mate with wild Monarchs, the deleterious effects of recessive lethals are completely masked." (<http://butterflybreeders.org/public/expertanswers.html>)

4. Harvesting Monarchs

Petition States:

Harvesting wild Monarchs, a common practice of the commercial butterfly industry to attempt to sustain the genetic diversity within commercial populations, also has the potential to exacerbate population decline.

AFB Response:

The practice of using Monarchs from the wild, for breeding in a butterfly farm, is one of the requirements mandated by the USDA for obtaining and using a shipping permit. The numbers involved in this practice are comparatively miniscule, (a few hundred compared to millions).

If the objective is to have farm-reared Monarchs closely resemble the wild population, logic dictates that the breeding pool should come from the source you want it to resemble.

5. Butterfly Farms are not Regulated

Petition States:

There are currently no requirements that butterfly breeders follow specific disease-prevention protocols, or that outside agencies conduct routine tests of captive stocks for diseases. Commercially-reared Monarchs can be heavily infested with the parasite *Ophycystis elektroscirrha* (Oe).

AFB Response:

As stated above in Number 2 (Diseases), AFB has in place several disease-prevention protocols and two outside agencies who are conducting routine tests on larvae and adult butterflies. AFB members have been educated on the issues of disease/parasites and disease/parasite control and prevention through the courses offered and screening tests in place.

6. Disease in Lab-Reared Monarchs Coincides with Butterflies Released

Petition States:

A recent increase in disease in laboratory Monarchs since 2004 coincides with an increase in the release of commercially-bred Monarchs.

AFB Response:

The presumption in this statement is that commercially-bred Monarchs are to blame for the increase in disease in the wild because these particular lab-reared Monarchs had an increase in disease. Words such as “we don’t know why” or “we wonder if” indicate there is no actual evidence that commercially-bred Monarchs are the reason for the problem. The bibliography of the petition reveals that there are no actual data to substantiate this claim.

http://www.learner.org/jnorth/tm/monarch/conservation_action_release.html

7. Millions of Monarchs are Released Each Year

Petition States:

The potential for captive-reared Monarchs to transmit disease or undesirable genetic traits is high because of the vast number of commercially reared Monarchs compared to wild Monarchs. Though the exact number of Monarchs sold commercially is unknown, there are an estimated 45 –60 butterfly farms in operation in the United States that distribute more than 11 million butterflies per year, most of which are Monarchs or Painted Ladies (*Vanessa Cardui*) (Altizer and de Roode 2010, p. 26; Pyle et al. 2012). Thus, it is likely that at least a few million Monarchs are released into the wild annually, representing a substantial proportion of the overall Monarch population (33.5 million wild Monarchs estimated in the overwintering eastern population in 2013-2014, and less than half a million total western Monarchs).

AFB Response:

It appears the reference to 11 million butterflies comes from a Xerces Society policy written by Pyle *et. al.* (<http://www.xerces.org/wp-content/uploads/2010/08/xerces-butterfly-release-policy.pdf>) In this document, a 2006 NY Times article is referenced. When the author of this article was contacted, he revealed that this number included Monarchs and Painted Ladies and only 32,000 were estimated to be Monarchs with the remainder being attributed to Painted Ladies.

According to a survey of the butterfly release industry completed by Tracy Villareal, Big Tree Butterflies, the actual numbers of released Monarchs in 2014 were between 118,230 and 193,204. As you can see, this number is far less than “several million” claimed by the petition. (<http://afbeducation.org/wp-content/uploads/2015/01/release-numbers3.pdf>)

8. Releasing Farm-Reared Monarchs Interferes with Population Studies

Petition States:

Release of captive-bred butterflies can also interfere with studies of the distribution and movement of wild butterflies which are essential to understanding their conservation needs, and increasingly important in light of climate change.

AFB Response:

This statement is clearly an hypothesis with no reported scientific data. Without documentation from adequate study results, it is impossible to know if this statement is true.

In the same section of the petition (overutilization) the petitioners request an exemption for schools, hobbyists, and citizen scientists to continue to raise and release up to ten wild Monarch butterflies per year without needing a permit to do so. Why are the petitioners not concerned about the interference of studies by these individuals?

If the petitioners do not want to allow taking Monarchs from the wild for breeding and that their own attempts at rearing Monarchs in a laboratory have resulted in disease; some important questions need to be asked.

Where will “citizen scientists” obtain their stock for rearing their ten butterflies per year?

Are butterflies raised by inexperienced citizens (who are unaware of or know how to test for pathogens and disease) more safe for release than an experienced butterfly farmer would raise and release?

If the release of farm-reared Monarchs “interfere with distribution studies,” how are Monarchs raised and released by “citizen scientists” not interfering with those same studies?

Dr. Bruce Walsh, University of Arizona Associate Professor, Department of Ecology and Evolutionary Biology, states:

“...unless the released material makes up a significant fraction of the local breeding population (at least over 1 percent and likely over 5 percent), it is unlikely to be obtained in a random population sample. Even if such distinct genotypes are included, standard methods using DNA markers to look at population substructure can detect such extreme outliers, and hence these do not compromise the studies.”

(<http://butterflybreeders.org/public/expertanswers.html>)

AFB Concerns

There are several concerns that AFB has in conjunction with the Monarch butterfly being listed in the Endangered Species Act.

First, AFB is concerned that landowners will start to destroy habitat (Scorched Earth strategy) in fear of losing control of their land in the event that the Monarchs are listed. (<http://tinyurl.com/lh2yvh>) This action could cause even more habitat to disappear.

Second, AFB is concerned that current conservation efforts could be curtailed or completely stopped, including school butterfly raising activities.

Third, AFB is concerned that schools and individuals in cities will not have the same opportunities as those in the country, even with Appendix B on page 159 of the petition, to be able to raise Monarchs for educational purposes due to lack of access to a source.

Fourth, AFB is concerned, if listed, that exhibits will no longer be able to have a source for Monarchs. Exhibits give individuals a chance to get close to butterflies, especially those who live in cities.

Reasons the AFB Feels the Monarch Should not be Listed

There are five very specific factors that need to affect a species to be considered for an Endangered Species Act listing. The petition uses many terms such as “could possibly” and “potentially” but lacks validated studies or data in many areas.

A species must be listed under the Endangered Species Act (ESA) if it is threatened or endangered due to any of the following 5 factors:

1. present or threatened destruction, modification, or curtailment of its habitat or range;
2. over-utilization of the species for commercial, recreational, scientific, or educational purposes;
3. disease or predation;
4. inadequacy of existing regulatory mechanisms; and
5. other natural or manmade factors affecting its continued existence.

The ESA requires that listing determinations be based solely on the best scientific and commercial information available; economic impacts are not considered in making species listing determinations and are prohibited under the ESA.

(<http://www.nmfs.noaa.gov/pr/listing/>)

Factor #2 - Over-utilization of the species for commercial, recreational, scientific, or educational purposes

AFB has already shown above there is no scientific or commercial proof for listing due to overutilization for commercial, recreational, scientific or educational purposes.

Factor #3 - Disease or predation

The petitioners have not shown any concrete scientific or commercial data that disease and predation are extensive. There are many natural occurrences, but no evidence that there is an increase in disease or predation above or beyond what naturally occurs.

Factor #4 - Inadequacy of existing regulatory mechanisms - History has demonstrated that habitat will be destroyed out of fear of regulations. An alternative is to work with landowners and not to regulate.

One such proposal, which already has proof of concept, is the Endangered Species Reserve Program, modeled on the successful Conservation Reserve Program administered by the U.S. Department of Agriculture. Proposed by Brian Seasholes, director of the Endangered Species Project at the Reason Foundation, the program would compensate landowners with annual payments in exchange for agreeing to sign 10-15 year contracts promising they will conserve endangered species habitat.

This is similar to the Conservation Reserve Program in which such contracts are used to incentivize landowners to address soil erosion and other natural resource-related concerns on environmentally-sensitive land. Contracts would be short, to accommodate changing ecological conditions and because landowners strongly dislike long-term agreements. The program, Seasholes argues, is proven, flexible, and simple, and most importantly, it would restore landowners' constitutional right to “just compensation” and change endangered species' status from financial liabilities to creatures of value. (<http://tinyurl.com/lh2yvh>)

In an interview with Lincoln Brower, one of the petitioners, Brower's response for the motive of writing the petition was:

"Brower: 'Those involved in writing the petition had, I think, two goals: One, to raise public and government awareness; and two, to generate funding of varied mitigation programs, private and public.'"

When asked if the petition is to save the migration, and if the Monarch is close to being extinct, Brower compares the Monarch to the panda and polar bears and only being able to seeing them in zoos. (<http://texasbutterflyranch.com/2015/02/16/q-a-dr-lincoln-brower-talks-ethics-endangered-species-milkweed-and-monarchs/>)

In this interview, Brower states that they are working to bring more awareness to the Monarch, but when asked if the Monarch is threatened or only the migration is being threatened, he sidesteps the question with questions and never answers the questions.

Instead, we can see from an NY Times article written September 14, 1998, Brower argues against the release of Monarchs. *"It's unnecessarily muddling the biology of the monarch butterfly,"* (<http://afbeducation.org/wp-content/uploads/2015/01/Festive-Release-of-Butterflies-Puts-Trouble-in-the-Air-The-New-York-Times.pdf>) As demonstrated in our arguments above, there is no scientific data available to support this statement.

Summary

In summary, the AFB believes that the Monarch butterfly should not be listed because it only meets two of the five requirements for a listing. AFB enthusiastically agrees that measures need to be taken to rebuild Monarch habitat, but the best way to do that is through public-private partnerships, according to Dr. Orley R. Taylor, Professor, University of Kansas Department of Ecology and Evolutionary Biology. Dr. Taylor states in his blog that several potential methods and their possible outcomes should be considered with his favored method being public-private partnerships.

"Premise: Monarchs have declined due to habitat loss requiring large-scale funding of public-private partnerships (P3) to restore enough habitat to sustain the migration. Implementing threatened status under the Endangered Species Act will hinder rather than assure survival of the monarch migration."

(<http://monarchwatch.org/blog/2015/01/28/monarch-conservation-our-choices/>)

Request for Exemptions

In the event that the Monarch is listed as threatened, AFB requests the following exemptions.

All butterfly farmers and hobbyists who participate in the following AFB programs - OE screening, larvae disease screening co-op, the Disease Prevention in Lepidoptera annual course and continue to stay up-to-date -- be exempt and allowed to raise and sell Monarchs for release for commercial, educational, research and conservation purposes. And that these same individuals continue to be allowed to ship across state lines in accordance with the USDA permits and that these farmers be allowed to obtain wild stock for breeding purposes to maintain a healthy genetic diversity. All exemptions made without needing extra permits.