

# **BUTTERFLY IMPORTS INTO THE USA: WHAT A DIFFERENCE A DECADE MAKES**

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## **ABSTRACT**

During the last 10 years, importation of butterfly pupae into the USA for public exhibits has changed drastically. Initially, every exhibit imported their pupae shipments individually, paying separate shipping and inspection fees for each package. Today, 90% of the pupae are imported via LPS LLC in Colorado, arriving at the exhibits with interstate permits. We describe the journey that these shipments take today compared to only a decade ago. Although we can't have predicted these changes, we will nevertheless attempt to "look into the future" at trends, and discuss concerns that might affect the industry over the next decade.

## **INTRODUCTION**

The first large-scale tropical butterfly exhibits opened in the USA in 1988. Still in existence as of this writing, these include the Butterfly Garden at Six Flags Discovery Kingdom (originally called Butterfly World at Marine World Africa USA Park) in Vallejo, California; the Cecil B. Day Butterfly Center at Callaway Gardens in Pine Mountain, Georgia; and Butterfly World in Coconut Creek, Florida. Since that year, more than 75 facilities in the USA have displayed imported tropical butterflies, some as year-round permanent exhibits, others as annual seasonal displays, while others as only temporary butterfly shows.

One of the greatest challenges facing exhibitors of tropical butterflies has been importing them from the farm to the display in a timely manner. Most tropical butterfly pupae have a very short duration – usually less than 10 days from the time of pupation to the emergence of the butterfly. Few international shipping methods can successfully meet such fast transport demands, especially when the needs for government inspections come into play on both sides of the journey. The butterfly exhibition industry as we know it today is extremely dependent upon this expedited delivery requirement, which has evolved significantly over the last 25 years, but still remains the most fragile link in the supply chain.

## **BUTTERFLY IMPORTATION IN THE EARLY YEARS**

In the 1990's when butterfly exhibits were taking hold in the USA, almost all shipments of tropical pupae were imported via DHL. The process was relatively simple. In these days before the internet, exhibitors would directly call or fax the butterfly farms to place an order. The suppliers would package the freshest pupae and deliver the box to their local DHL counter, requesting the special inspection brokered clearance upon arrival in the USA. DHL would direct

the box to transport through an official “designated port of entry” in the USA, one of a dozen or so international airports that had USDA and USFWS inspection stations on the premises or nearby. Once inspected and cleared by customs, DHL would then forward the box to the exhibit via DHL planes and trucks.

Import costs were about \$100 for shipping, \$25 for the special handling, and an additional \$55 for USFWS inspection fees, with non-profit exhibitors being exempt from the USFWS fee. Total costs for importing a shipment (excluding any export inspection fees from the country of origin) were around \$150-\$200.

This system worked without problems much of the time, but certainly not always. The DHL support phone number, as well as USDA port inspectors and USFWS officers at each port of entry, were on everyone’s speed dial. In most cases, boxes could generally be expected to arrive in 3 to 5 days. Every exhibit handled its own ordering and international payments. Small butterfly farms began popping up everywhere offering less expensive pupae in an attempt to break into the growing market.

The USDA permits were hand typed by dedicated staff – in the early years primarily by Deborah Knott alone, signed by Phil Lima of the USDA APHIS PPQ Permit Office in Maryland. The permit species lists sometimes contained misspellings and inconsistent or out-of-date species names, creating occasional confusion and delays at the port of entry when the species names on the permit did not match the name on the invoices or other export/import documents. Broad options like *Heliconius* spp. and *Papilio* spp. were included on many permits. New major facilities were given the “white glove treatment” by Dr. Bisham Singh, while smaller facility inspections were occasionally completed under his direction by local USDA officials, often unfamiliar with the specific containment challenges posed by exotic butterflies in a publicly visited space. Only after the facility inspections were completed and the permits signed could importation begin and the facility open, occasionally resulting in a very last-minute rush to meet overly optimistic grand opening commitments.

## **IICC, ICBES, AND IABE(S)**

For most of the first decade of the existence of butterfly exhibits in the USA, exhibitors here had for the most part never met their pupae suppliers in person. All correspondence was by mail, phone, or most often by fax.

The only conference regularly attended by any of the early North American butterfly exhibitors was the American Association of Zoological Parks and Aquariums meetings (then the AAZPA, now the AZA), especially after the founding of the Terrestrial Invertebrate Taxon Advisory Group (TITAG) in 1990. At the TITAG meeting held in Toronto in 1992, several insectariums keepers showed an interest in collecting in the Arizona desert during the time of the new moon following the monsoon rains in late July. Hosted jointly by the Sonoran Arthropod Studies Institute and TITAG, this became the first annual Invertebrates In Captivity Conference (IICC), held August 13-15, 1993 in Tucson, Arizona. The name was later changed to the current Invertebrates in Education and Conservation Conference (IECC). Although not attended by any

tropical butterfly suppliers initially, it would become a place where some exhibitors would first get to meet face-to-face with some of their butterfly suppliers.

This face-to-face interaction became extremely valuable at improving the way that butterfly pupae were supplied, as it allowed exhibitors and suppliers to discuss butterfly packaging and shipping methods in much greater detail than would be possible by fax. This interaction led Joris Brinckerhoff of Costa Rican Entomological Supply (CRES) and Frank Elia, then Curator of the Day Butterfly Center in Callaway Gardens, Georgia, to organize the First International Congress of Butterfly Exhibitors and Suppliers (ICBES). The meeting was hosted in Costa Rica March 13-16, 1997, and became the most important opportunity for butterfly exhibitors and suppliers from around the world to come together for networking and problem solving. The industry was instantly changed from butterfly purchasing based on price lists and faxed correspondence to genuine lifetime friendships and much more personal business relationships. This highly successful conference was followed by a succession of equally valuable ICBES meetings held in Florida (1998), South Africa (1999), and Malaysia (2000).

Often at these IICC and ICBES meetings, the discussions turned to the advantages and disadvantages of organizing the industry into a formal trade association. At the 9<sup>th</sup> annual IICC meeting in Rio Rico, Arizona in August 2001, Dan Dunwoody (owner of Butterfly Dan's, a supplier of North American pupae in Kissimmee, Florida) polled the butterfly exhibitors in attendance at the conference and found that their displays were surviving economically, but only marginally so in most cases. During these discussions, he decided that well organized cooperative marketing was needed to help the industry survive, and that as a group, butterfly exhibits could work together to help each other. Dan recruited a Board of Directors to create the International Association of Butterfly Exhibitors (IABE, which later became IABES when "suppliers" were added as regular members rather than sponsors).

Initially, the focus of IABE was cooperative marketing, with a newsletter for communications (the *International Flutterings*), a poster map of worldwide member facilities, collector pins for trading, brochure trading, and annual international butterfly photo contests.

The September 2001 terrorist attacks on the United States resulted in a temporary closure of the borders to importation of biological materials, but fortunately this was only very temporary. Through the efforts of several butterfly exhibitors and government officials, importation resumed almost as soon as the airports re-opened, with regular importation via DHL occurring nearly normal just 3 weeks later, although there were many instances of delays at the border as inspection stations became overwhelmed with new and changing responsibilities.

Also around this time, DHL opened a hub in Cincinnati, resulting in rerouting most international shipments on their planes to that hub. Cincinnati was not a designated Port of Entry and therefore lacked a USDA inspection station and formal USFWS presence for cargo inspections. Several butterfly shipments were delayed by several days due to having to go back to an official port of entry for clearance and then back to Cincinnati before final delivery.

Just a short time later, one of the main events that affected importation of butterfly pupae into the USA occurred when DHL completely refused to carry pupae for a couple months in the spring of

2002. Some DHL executive or lawyer decided to enforce a rule that aircraft can't carry live animals in their hold. Exhibits were hung out to dry. After extensive discussions and negotiations with DHL, the USDA, and the USFWS, finally DHL resumed service.

It was also around this time that the USDA brought the E-PERMIT software online which saved a lot of time typing and misspelling but sure didn't make anyone's life easier. Although the online permitting continues to improve over time, it is still a challenging system to navigate even today.

## **LONDON PUPAE SUPPLIES OF LOS ANGELES**

DHL rates started increasing and they bought Airborne Express in the US to compete with FedEx. Their service ratings went from barely tolerable to painful. Exhibitors found themselves chasing one or two boxes every week because they would become lost, stuck at inspection stations, or forgotten on someone's desk. This expanded DHL went on for about 5 years before the parent corporation pulled the plug. DHL pulled out of the USA and shut down most of their distribution centers. They will still handle import/export services but stopped most of the domestic distribution of packages. Even today about 1 in 2 boxes sent via DHL experience delays or become lost in transit. They still have a stronger presence overseas than UPS or FedEx but have not tried to repair the damage to their USA branch.

At the European Conference of Butterfly Exhibitors and Suppliers in November 2004, Dick Burgess of London Pupae Supplies (LPS) in Oxford, UK, approached us about the possibility of setting up a distribution office in the USA. LPS Oxford was losing half of their pupae going into the USA due to DHL and Homeland Security delays. Instead of sending a dozen boxes a week into the USA to a dozen different exhibitors, the plan was to receive only a few boxes at the new import office and then separate these into weekly orders to be sent by domestic carriers to the final destination.

This resulted in the creation of the London Pupae Supplies of Los Angeles, located in an office just outside of LAX airport, which began importing pupae in 2005. The hopes were to have the Asian suppliers ship to LAX and be able to quickly move the pupae through the LPSofLA office and on to the final exhibits.

The creation of the LPSofLA office initiated another major change in the industry. Exhibits could now call a USA source and ask for imported tropical pupae from a variety of different countries of origin. They only needed a valid USDA permit. No "Red and White" USDA import labels were required and no inspections were involved on their part. Pupae were imported on LPSofLA's permits, sorted and boxed in Los Angeles, and with a \$50 FedEx Priority Overnight shipping, they would have them the next morning. They didn't have to talk with DHL anymore or deal directly with importation inspections. In the first few months we saw how badly the industry needed a better shipping alternative.

The next big change came from working with CRES. Joris Brinckerhoff was running into the same issues LPS Oxford had encountered. Sending a couple dozen boxes into the USA every

week left a lot of boxes stuck in limbo. From our discussions came the idea of “break bulk” shipping. CRES would package the orders in Costa Rica then bundle everything onto a single pallet. Once it cleared, the pallet would be separated into the individual orders and sent via FedEx to the final exhibit destination. There was some consideration of doing the sorting and packing in the USA but it was decided to instead use less expensive labor in Costa Rica for that process.

Instead of using DHL, these larger shipments were shifted to air cargo counter-to-counter service instead. It was more expensive but much more reliable, and the increased cost of each shipment was made up for by the larger volume sent in each shipment and by a drastic reduction in lost shipments. Initially, when the box arrived in LAX, Rich would hand carry it to USDA, USFWS and customs for clearance. We could ship, process, and deliver the boxes in 3-4 days with no DHL involvement.

The LPS offices brought in a dozen shipments per week, then unpacked and sorted out the diseased, parasitized, or old pupae. Exhibits could now get a variety of species from different countries in one shipment. Most of the larger shipments were quickly switched to air cargo into LAX in order to avoid using DHL. The costs were higher but the decline in losses offset the additional cost.

## **LPS LLC IN DENVER TODAY**

Unfortunately, day-to-day management of LPSofLA immediately got interesting from the day the doors opened. Rocel Regodon was slated to manage the operations, but could only stay in the country temporarily on a tourist visa. When the lease in Los Angeles finally expired we moved the office and distribution containment lab to Denver near DIA airport

After the move, the “break bulk” option was offered to the other butterfly farms around world to help alleviate the losses and headaches associated with using DHL. Today, many suppliers utilize these services.

In 2008, the USFWS decided to charge for all inspections. They started at about \$90 per inspection and increased the fee by \$20 per year for 5 years. The cost in 2014 is \$186 inspection fee at the port for a non-CITES shipment. This also applies to non-profit exhibits, who had previously been exempt from these inspection fees. Including about \$200 in shipping costs and \$50 for the brokering fees, this resulted in a cost of about \$500 per box for a regular shipment through DHL.

Air cargo currently costs about \$1000 per shipment, including the freight, broker fees, and inspection charges. This is far too expensive for most exhibits to justify, yet the increased reliability of service results in much lower losses. Working with larger orders or break bulk pallets, the lower losses are quickly absorbed. LPS setup the ‘break bulk’ service to take advantage of the greater reliability, while splitting the higher costs over several exhibits. This allows smaller exhibits to take advantage of the air cargo shipping benefits. It also makes it easier for the suppliers to add new customers, merely by adding another box to the pallet.

Currently, bulk shipments come into the US under LPS's USDA permits and red and white labels. To take advantage of this service, exhibits need only provide a copy of their USDA Interstate Movement permits. Upon arrival in Denver, their box of pupae is split from the break bulk pallet and sent via FedEx, arriving the very next day.

Today, the butterfly exhibit industry in the USA is enjoying the choice of ordering mixed pupae from LPS's catalog with a \$50 freight fee, or ordering directly from the farms with lower prices but a \$190 shipping charge. Either option is cheaper and more reliable than the DHL options previously.

One unfortunate consequence of this change from individual to centralized shipping is that it is nearly impossible for new farms to get into the USA market. New farms will need to be sponsored by exhibits to help cover the additional fees until they can grow large enough to supply multiple customers each week.

The first LPSofLA catalog format was modified from the version used by London Pupae Supplies in the UK. This consisted of the general list of species and the costs for each. The format of the catalog was soon changed to include pictures corresponding to each species. The species listed included everything known to be available from each of the various farms around the world. Providing the picture catalog has also changed the industry in the USA. Many butterfly exhibit employees are not familiar with the scientific names and found it hard to coordinate ordering from species lists. Now they can see what's available from around the world and be more involved with the variety in the gardens. But don't let marketing see it!

Over the last decade there has been a turnover of staff in the curatorial departments of many exhibits. Many of the new staff members have never coordinated international shipments with or without DHL. A few of us 'old guys' still cringe with the memory of the old days, but after years of working with freight companies, we seem to have finally arrived at a supply solution that is acceptable. Without any of the many changes that have occurred over the past decade with regard to pupae supply and shipping, many tropical butterfly exhibits in the USA would have closed due to excessive supply costs, or shifted to exhibiting only North American species. Our entire industry would have been trimmed to a few larger tropical exhibits that could absorb the increasing costs. The European Union has now incorporated many of these changes into their exhibit supply system as well.

Another advantage of centralizing the butterfly pupae distribution is that the importation of tropical arthropods for insect centers has also been improved. Since LPS is already importing insects, it was an easy shift to include non-Lepidoptera, including beetles and phasmids, along with the weekly butterfly pupae pallet. For example, if an exhibitor needs an atlas beetle from Tropical Entomological House in Malaysia for their insect center, and TEH has some available in stock, it can be shipped the following Monday on the pallet with the other pupae. If the exhibitor is already receiving a box of pupae, there is no additional freight charge to include the beetle. There is no longer any reason for butterfly exhibitors that also display other arthropods to special order these animals separately. The border inspectors treat them all equally as permitted arthropods, whether they are butterfly pupae or beetles or phasmids, etc. – all are insects.

One of the most significant issues to affect the industry recently is that DHL has halted all live shipments. About 5 years ago, the African suppliers went to the DHL counters with their weekly boxes and were told that DHL would no longer accept live animals, including butterfly pupae. Fortunately, Mida Butterfly Farm in Kenya had already switched to shipping via air cargo to LPS such that it didn't affect LPS's supply of African pupae. However, the other suppliers like Amani in Tanzania and Kipepeo in Kenya completely lost their ability to export pupae. Amani and Kipepeo have found alternate options for shipping pupae to Europe, but boxes to the USA have been stopped.

Two years after the African shutdown, DHL pulled the plug on Asian pupae. The farmers in the Philippines went to the DHL counters on Monday with their weekly shipments and were told that they couldn't ship live pupae anymore. LPS received several panicked calls that day. A couple of Philippine farms were already using air-cargo to ship pupae to LPS, but unfortunately there was a large number of smaller farmers stuck with boxes of pupae and no ability to ship them. Today, nearly all of the smaller production farms in the Philippines are gone, and with their loss, the days of inexpensive Asian pupae are also gone.

Since DHL discontinued shipping live animals from Asia, the number of Philippine pupae arriving into the USA fell to about 25% of the amount shipped in previous years. Weather patterns in the spring of 2014 have dropped that number even further to about only 10%. Hopefully the Philippine suppliers will be able to recover soon, but the current climate forecast does not look very promising.

## **THE FUTURE OF TROPICAL IMPORTS INTO THE USA**

Ten years ago we could not have predicted the current status of butterfly imports, and yet when we look now into the future, certain facts are nearly certain. Shipping costs will not be decreasing. USFWS inspection fees will not be decreasing. USDA permit fees are still on hold at this time, but are likely to eventually be an additional expense.

Pupae supplies around the globe have been pushed to the limit. Neotropical demand has been supported well by the suppliers in Central and South America. African demand has been met with the regular shipments from Kenya. The greatest deficit today is the failure of Asia to meet demands. LPS is trying to support additional sources from Thailand and the Philippines but most have been maximized. Tropical Entomological House in Malaysia is attempting to expand in order to cover the increased demands from Asia. Unfortunately, there are several Philippine species that exhibitors desire that are not available from other countries.

The USFWS has also been considering changes, primarily with regard to internal restructuring. At this time, there have been no indications of fee increases in the near future, but it is still a possibility. There is also a possibility that Denver could become a USFWS official port of entry, but without an official USDA Plant Inspection Station at DIA, it cannot be used as a port of entry for pupae. However, if this were to happen, it could be possible to streamline the shipping and save on some of the fees.

LPS is working with FedEx to create a viable option for imports to get inspected. With FedEx being centralized around Memphis, we created a process that reroutes any international shipment to the Miami brokerage office. They will walk the package to USDA and USFW before returning it to the FedEx system for final delivery. This should work for any package coming into the USA at half of the cost of air-cargo. It has been in place for 6 months with Columbia with moderate success. LPS is currently waiting for the green light to test the FedEx option with other small suppliers.

For now, LPS is addressing the problems as they arise. Most of the issues experienced during the last decade were not anticipated. We have no doubt that the next decade will have a set of new unanticipated challenges for our industry as well.