Feeling Blue in Miami as We Watch the Largest Extinction of United States Butterflies

by Dennis Olle

Introduction

“We protect what we love, we love what we understand, and we understand what we are taught.” J.Y. Cousteau.

I was recently asked to write an article for these pages regarding the state of butterfly conservation in southern Florida in response to an ever-rapidly disappearing suite of butterflies, some of which are found nowhere else in the world. Candidly, many of our butterflies are gravely imperiled and the outlook for them is grim.

This development may not come as a surprise to those who have been following the status of butterflies in recent years, either in Florida (as previously discussed three years ago, separately in these pages by Marc Minno and myself [American Butterflies 18:3].) The best I can say is that we are now in a position to monitor and perhaps measure their decline.

Any analysis of butterfly conservation in southern Florida needs to begin with the understanding that there are tremendous, continuing human-inspired pressures on a very fragile and now considerably reduced landscape: pine rocklands interspersed with Antillean hardwood hammocks and finger glades of fresh water, the latter flowing to North America’s only coral reef, with the exposed remnants of that reef system forming the bulk of the Florida Keys.

Miami Blues — Revived?

A discussion of the current state of South Florida butterfly conservation must begin with the “ebb and flow” of Miami Blues.
remote islands of the Key West National Wildlife Refuge, was finally listed by the federal government as an endangered species.

The path traveled to this now “protected” status was a rocky one, and a nightmare of bureaucratic bungling and red tape. The Miami Blue (along with other butterflies discussed below) was in line for endangered status long ago. However, for whatever reason, circa late 1990s, the United States Fish and Wildlife Service (USFWS) (the agency responsible administering the Endangered Species Act) decided to take the Miami Blue off the waiting list.

I imagine their thinking was “that butterfly’s status was unknown, let’s just sweep it under the rug, I mean who’s going to notice anyway, right?” Well, actually, the
Miami Blue’s status was known, and was in dire need of protection. Actually, some thought it was already extinct.

Then a lone population was encountered in Bahia Honda State Park in 1999 (see *American Butterflies* Spring 2000). Immediately thereafter NABA petitioned the USFWS to emergency list the butterfly as endangered. Nothing was done in response; however, against all odds the State of Florida’s Fish and Wildlife Conservation Commission, perhaps in cognoscente of the fact that they were the keepers of the last population, did act in response to NABA’s entreaties, and the blue was State-listed as endangered shortly after their rediscovery.

In 2006 a second Miami Blue population was discovered, flying in the Key West National Wildlife Refuge (see *American Butterflies* Summer 2006), and more than a decade after NABA’s original petition, the USFWS belatedly listed the Miami Blue as Federally endangered (endangered-August, 2011; full listing-April, 2012).

As a result, a recovery plan for Miami Blues is now being drafted, which may provide a path forward toward bringing this butterfly back from the brink; or perhaps it will just sit on the shelf and collect dust, as so many recovery plans nationwide do.
In an attempt to increase the next generation of swallowtails, the University of Florida was allowed to harvest eggs and caterpillars during the spring 2013 flight season, in the hopes of rearing swallowtails in the safety of the greenhouse and laboratory environment and then releasing them into the wild.

However, historic attempts at bolstering the wild populations by releasing captive bred individuals had, at best, only fleeting success, largely because the main factors that caused the swallowtails’ decline were never rectified; in fact, the factors were never really identified, let alone fixed. Aside from the obvious range-wide loss of habitat, one derivative “habitat loss” theory potentially explaining the swallowtails decline, even on conservation lands, was the need for substantial habitat restoration. In particular, more hardwood hammocks, with larger densities of the swallowtail’s host plants — torchwood and wild lime — were probably required. Ideally, such efforts would have been undertaken decades ago, but better late than never once habitat is restored, and once Schaus’ Swallowtails’ host plants are more abundant on these islands it is hoped that the swallowtails may better disperse.

It’s a good plan, but can the butterfly hold on that long, given its low population numbers? Time will tell.

5. Florida Leafwing and
6. Bartram’s Scrub-Hairstreak, were also on that 1990s waiting list with Miami Blue for consideration as endangered species status, when they too got bootied off, again based on some USFWS bureaucrat stating “their status was uncertain at the time.” Really, my review indicates that actual USFWS-funded studies, along with numerous papers from around that time-frame provided far more than slightly awareness that the leafwing and hairstreak were not only in dire straits, but also identified some of the factors in their demise (habitat loss, habitat mismanagement, chemical pesticides, etc.). Fortunately, both the leafwing and hairstreak were reinstated as candidates for federal protection in 2006, and now are currently proposed for endangered species status, with the contingent prospect of critical habitat being designated for their recovery. Although formerly widespread in South Florida and on the Keys, as it stands now, Florida Leafwings occur only within Everglades National Park. As recently as six years ago there was a significant population on Big Pine Key, mainly in the National Key Deer Refuge, but this population now appears to be extirpated due to habitat mismanagement. Bartram’s Scrub-Hairstreak maintains a handful of small, localized populations within the southern Florida mainland, as well as on Big Pine Key.

7. With respect to the Florida White it has been increasingly clear that the endemic subspecies can no longer be reliably found in Florida. Only a few populations remain.

8. Florida Purplewings, which once maintained an extensive range in southern Florida and the Keys, are now quite localized on a few islands in the Florida Keys.

Government
In my experience, one of the biggest tools for, and impediments to, the protection and maintenance of healthy butterfly populations is “the government” as you can no doubt tell from my tone above. While National Parks, National Wildlife Refuges, National Forests, U.S. military bases, etc. are crucial to protect land from development and the Federal Endangered Species Act is a valuable tool in the somewhat limited arsenal of weapons to protect imperiled species, if you think that the listing of a species is tantamount to species recovery, you would be sorely disappointed. In fact more than one robust debate has been sparked at Imperiled Butterfly Working Group meetings (see below) as to the value v. inhibitions created by the “listing” of a species; note, I generally come down on the side of listing and resulting governmental involvement.

Having said that, know that just identifying the governments (each with their separate bureaucracies) that are routinely involved in “butterfly conservation” is daunting: the USFWS, including the individual wildlife refuges, e.g., National Key Deer Refuge as well as the USFWS regional field offices (Vero Beach, FL); the National Park Service (including Everglades and Biscayne National Parks); the State of Florida Dept. of Environmental Protection, including its Division of State Parks (and the individual South Florida parks in that system); the Florida Fish and Wildlife Commission; The University of Florida (McGuire Center for Lepidoptera and Biodiversity); Monroe County Mosquito Control District; Miami-Dade County Parks Dept. Just arranging meetings (apart from consensus) of these “stakeholders” is an exercise in itself, since you cannot assume they talk to each other; in fact, you should assume the opposite.

With this in mind, one relative bright spot that occurred during the Miami Blue debacle over the last decade was the creation of the Imperiled Butterfly Working Group (discussed below).

Of particular concern is the oft-encountered bureaucratic mind-set, exemplified by the following three examples: it took more than a year to get a “memorandum of understanding” between state agencies to reintroduce Miami Blues into Bill Baggs State Park (on Key Biscayne) only to have both the wild and captive populations wink out before any restorative efforts could be undertaken; we watched the Miami Blue population in Bahia Honda State Park evaporate due to a green iguana population run amuck and then saw seemingly meaningful implementation of iguana controls after the butterfly had disappeared; everyone, including the regulators, routinely waited for the University of Florida’s McGuire Center researchers to release information on the
in Miami-Dade and Monroe Counties; it is pine rocklands to concrete (suburban sprawl) the conversion of more than 90% of the native Bartram’s Scrub-Hairstreaks that it’s not just know that in the case of Florida Leafwings and species’ disappearance as “loss of habitat,” you hear the stated reason for some butterfly manager has not been a pretty picture. When private sector “heads would have rolled.”

Further, watching the government as land managed population, only to find out by email (at least that’s how this author found out) that the University of Florida’s population had been allowed to die out. All this occurred while there was a management plan in place. Fortunately for many of the individuals involved (except for Miami Blues) it’s a good thing that these events took place on the government’s “watch”, because I can assure you that if such hijinks had occurred in the private sector “heads would have rolled.”

Further, watching the government as land manager has not been a pretty picture. When you hear the stated reason for some butterfly species’ disappearance as “loss of habitat,” know that in the case of Florida Leafwings and Bartram’s Scrub-Hairstreaks that it’s not just the conversion of more than 90% of the native pine rocklands to concrete (suburban sprawl) in Miami-Dade and Monroe Counties; it is also the loss of the few remaining hammocks and pine rockland habitats within Everglades National Park, within National Wildlife Refuges (including the National Key Deer Refuge), and on other conservation lands (i.e. Miami-Dade Parks), due to inadequate land management practices.

The butterflies also face unregulated and unpermitted mosquito pesticide spraying, nonexistent or inconsistent fire regimes, unnatural flooding, and a general lack of reasoned management plans. These actions and inactions can render what is seemingly good habitat unusable, if not toxic, to imperiled butterfly species.

Perhaps the “benign neglect” employed at Lignumvitae Key (Monroe Co.) regarding Florida Purplewings (the last time I looked, this extraordinarily rare species wasn’t even discussed in the management plan for that state park) is better, at least to the skeptical eye, than what appears to be active mismanagement at the various locations described above. Simply put, do not assume that because an imperiled butterfly flies in a national wildlife refuge or even in a national park that it is safe — it most certainly is not in South Florida.

Finally, government(s) are too reactive, clumsy, and unpredictable, especially when pitted against the vagaries of nature, and each other. Such as the Miami Blue examples above, where the State and Federal agencies were compelled to ultimately list the butterfly as endangered when forced with the realization that they had the last population of something and a “heck, maybe we should do something about that, shouldn’t we?” attitude. In other words, they tend to “fight the last war” and what is more important, it doesn’t seem to even learn from that.

Another example, is that there has been a long-standing, dust-gathering management plan in place for Schaus’ Swallowtails (see South Florida Multi-Species Recovery Plan, 1999) which treated the butterfly as “rescued” when, in reality, the butterfly was in steady decline before the Plan was even finalized. The USFWS didn’t realize this until very recently and now it may be too late.

As discussed above, as of this writing, Schaus’ Swallowtails have once again undergone a population crash, with the wild population in critical condition (a handful of individuals seen in the spring [and only] brood) and a captive population (in diapause) at the University of Florida’s McGuire Center.

We find ourselves in the same predicament: we don’t know what went wrong, and, in large part, I suspect that this is because we do not understand the butterfly’s biology despite the fact that this species has been on the federal endangered species list for almost 30 years (August 31, 1984) and that much of the hundreds of thousands of dollars (if not more) that have been spent on its “recovery” has gone to researchers at the McGuire Center.

Imperiled Butterfly Working Group (IBWG)

The travails of Miami Blues had at least one positive product: the formation of the Miami Blue Working Group in 2004. Under the direction of the Florida Fish and Wildlife Commission (FWC), this is a loose affiliation of resource managers and butterfly conservation stakeholders; the group includes representatives from many of the governmental bodies mentioned above, as well as other interested persons/groups, most particularly NABA chapter representatives. Shortly after the Miami Blue crisis was addressed, it became clear that several other Florida butterfly species were imperiled (see species list following this article); so the name was changed to the Imperiled Butterfly Working Group (“IBWG”).

This may be an unfair expectation, but a downside of the group is that we are all talk and little action. Another disadvantage of the “cooperation” fostered by the IBWG is that you can get “sandbagged.” After one of the first meetings of the group, the Florida Keys Mosquito Control District (a participant) promptly sued the FWC, the University of Florida, et al., to stop the release of captive-reared Miami blues in the Florida Keys. Needless to say this had a “chilling effect” on all future releases, and allowed politics rather than science to dictate the location of releases.

The “good news” is that the IBWG has identified imperiled butterfly species which is the first necessary step to mitigating the risk of a butterfly species going extinct (or being extirpated) without anyone knowing, much less doing something to stop avert it (the fate of Zestos and of ‘Rockland’ Meske’s Skippers).

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that are already “protected” lands (national parks, national wildlife refuges, designated “natural areas”, etc.) is crucial to the survival and prosperity of these imperiled species. Interestingly, one of the issues not faced by these efforts (particularly under the federal Endangered Species Act) is that very few if any of the imperiled species fly on private lands, as a result much of the “heartburn” caused by the Endangered Species Act’s alleged trampling for private property rights is a non-factor in Florida. For more information about the efforts of the IBWG visit its SharePoint site: http://share2.myfwc.com/IBWG/default.aspx

What Have We Learned?

Of course, the real question is: What have we learned about butterfly conservation in the last decade? Respectfully, I would recommend the following, so as not to the repeat the mistakes of the past:

Wild populations should, where possible, be used to generate a “head-start” program in situ, by expanding suitable habitat around the periphery of the wild population so that it can colonize new areas.

If there are releases into the wild from a captive colony should to be monitored continuously and not episodically.

The location of any releases from captive colonies should be dictated by science and not by politics.

The creation and care of captive colonies should be entrusted to persons/institutions with appropriate skills and a reliable track record of successful reintroductions.

Any captive colony should be maintained in perpetuity or until responsible parties are released from their maintenance commitment by the appropriate authorities (with notice to stakeholders).

Change in the status of any captive colony, e.g., the occurrence of disease, should be required to promptly and publicly be reported.

Any captive colony should be intensely studied with a commitment to understand the biology of the species. In conjunction with careful studies of the wild population, a special emphasis should be placed on understanding the factors limiting the species’ success in the wild.

The prompt publication of the results of those studies, preferable in scientific journals but also in other publically available venues, should be required.

Conclusion

“Never doubt that a small group of committed citizens can change the world. Indeed it is the only thing that ever has.” M. Meade.

In conclusion, I am sanguine that if we learn from the mistakes of the past, particularly the mistakes that have been made with respect to Miami Blues, and to a lesser extent Schaus’ Swallowtails, Zestos Skippers, and ‘Rockland’ Meske’s Skippers, we can make real efforts in maintaining and restoring butterfly populations in South Florida.

Actually, despite the dire tone of this article the prospects for butterfly conservation in Florida are on the upswing: a loose network for butterfly population monitoring has been established, imperiled species have been identified, a formal forum of government stakeholders and others (principally local NABA chapters) has been set up with regular meetings to address butterfly concerns, and several species have been added to the federal endangered species list. A lot has been accomplished, and lot remains to be done.

The fight to save our butterflies goes on!