A Review of: Dorcas et al. 2012. *Severe Mammal Declines Coincide with Proliferation of Invasive Burmese Pythons in Everglades National Park*. Proceedings of the National Academy of Science. Online at: doi/10.1073./prias/1115226109

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We have lived in a rural setting in the Hill Country of Texas for over 20 years. Until recently we had not seen a skunk, live or DOR, on the five miles of country road we drive to our house, but we have seen three in the past year. There are three species of skunks here and they have been here all along, we smell their essences wafting in on the wind from time to time. We had not seen a ringtail (*Bassariscus astutus*) on the road in 15 years, but we've seen two this year. We mention this to illustrate the uncertainty and vagary of estimating mammal presence and population density on the basis of road driving.

The paper under review is about road driving. It is a weak and deceptive paper. It is the latest contribution of the GCRAP researchers, and it is little more than fodder for the media who apparently starve for any further shred to feed the story that Burmese pythons in Florida may be worse than the asteroid that ended the Cretaceous.

This paper is multi-authored by Michael E. Dorcas, John D. Willson, Robert N. Reed, Ray W. (Skip) Snow, Michael R. Rochford, Mellissa A. Miller, Walter E. Meshaka, Paul T. Andreadis, Frank J. Mazzotti, Christina M. Romagosa and Kristen M. Hart—all apparently in the belief that if enough GCRAP researchers sign on to a paper, then it must be true. These are many of the all-stars of the GCRAP camp. And for those readers who have not followed this story for the past few years, we explain that "GCRAP" is the acronym for the "Giant Constrictor Risk Assessment Partnership," the name this merry band assigned to itself.

We note that this paper is not sponsored or funded by the National Academy of Science, as has been erroneously reported in several media accounts, but rather is published in the Proceedings of the National Academy of Science—and according to Mazzotti (2012) that is a big difference. As is protocol for this journal, the editor is cited below the authors—this paper was edited by Peter M. Vitousek, an environmentalist from Stanford working with soils and nutrient recycling. Looking through his extensive and impressive resume, we see no evidence that he has any interest, experience or expertise with vertebrate zoology, predator/prey interactions, herpetology, mammal surveys, or the Everglades region—those being the general topics of this paper.

Synopsis

The title of this paper could be "Severe mammal declines coincide with [fill in the blank]." With confidence equal to any correlation with pythons proven by this paper, one could write into that blank "drought in the ENP." Or "increase in atmospheric CO_2." Or "increase in solar flares and sunspots." Or "increased traffic and tourism in ENP." Or "increase in feral hogs in ENP". Or "increase in invasive fire ant presence in ENP." Even "collapse of the housing market" is just as true as "proliferation of pythons."

The paper begins with the apparently obligatory paragraph meant to describe the monumental importance of Invasion Biology itself. The various references include, of course, the estimation of Pimentel et al. (2005) that invasive species cost the US billions of dollars; the following apocryphal statements are supported by papers that describe the environmental mayhem caused by cane toads, ants and cordgrass—but nothing pertaining to the Everglades National Park [ENP] or to snakes of any sort.

The last sentence in the first paragraph reads as follows: "Invasive predators can reduce or even extirpate native prey populations" (Gurevitch and Padilla, 2004). Of course, it seems obvious that any predator—invasive, alien, or native—can reduce prey populations. However, the article of Gurevitch and Padilla (2004) concerns extinction and not extirpation, and offers little support to the statement made by Dorcas et al. We were interested to note that Gurevitch and Padilla (2004) observe that of the 762 species globally documented to have become extinct as a result of human activities in the past few hundred years, fewer than 2% list alien species as a cause; of those, predatory invasive terrestrial vertebrates are an even smaller percentage of cause.

The first sentence of the second paragraph states: "Nonnative reptiles are increasingly recognized as problematic invaders." and incorrectly cites Pough (1980) to support this statement—nowhere in that paper is such a statement made. The paragraph then goes on to make general statements about the dangers invasive snakes pose to ecosystems. Of course, all supporting references to those statements are publications concerning the brown treesnake in Guam, as it is the only truly invasive snake species. It is our observation that the comparisons made in nearly every GCRAP publication of Burmese pythons in the Everglades to brown treesnakes in Guam are invalid and pointless. One is an arboreal colubrid snake that invaded a small island with no native snakes, no natural predators, and a dense human population—the other is a terrestrial medium-to-large python that is established in an immense protected Florida refuge with many native snakes and many native predators. There is no correlation between the actions, effects and futures of the two snakes.

The first half of the third paragraph describes the history of Burmese pythons in south Florida in five sentences, three of which emphasize that these pythons really eat a lot of a wide variety of Florida animals. The second half of this paragraph is a description of the methods used and the purpose of this paper. The authors state their hypothesis on which this paper is based, writing: "Here, we present spatial and temporal data supporting the hypothesis that Burmese pythons have severely reduced populations of several species of formerly common mammals in ENP within 11 y of being recognized as an established invasive species."

Basically, this paper is based on "systematic road surveys" as a means to sample the mammal population. In other words the authors drove back and forth at night on roads in and around the Everglades National Park and counted the mammals, live and dead, that they saw. Four separate surveys were created in this manner: in 1996–1997 a total of 6,599 km (4,100 mi) were driven on 51 nights in the ENP in areas where years later Burmese pythons were recorded; during 2003–2011 a total of 56,971 km (35,400 mi) were driven on 313 nights in the ENP in areas where Burmese python reports were most concentrated; during 2009–2011 a total of 4,794 km (2,978 mi) were driven on 26 nights in four locations that they believed that Burmese pythons had recently colonized. In two areas north of the Everglades ecosystem where Burmese are not found, during 2009–2011, 278 km (172 mi) were driven on one night in one of the areas and in the other area, on nine nights a total of 539 km (334 mi) were driven.

A problem we have with the data set is that according to Mazzotti (2012), the actual study was undertaken by GCRAP in 2009. The data for the years of 1996–97, and from 2003 into 2009 were compiled from other sources not specified in the paper. The one identified extraneous source of data is Holbrook and Chesnes (2011), itself a weak and poorly designed undergraduate research paper based on 18 nights of road-driving.

For comparison reasons, the total number of sightings of each species was divided by the number of kilometers driven in that survey (animals/km) and that figure then multiplied by 1/100 (animals/100 km) to give the number of animals seen in 100 km (62 mi) of driving. They refer to this as the "corrected sighting rate." For example, the authors report sighting five opossums in 56,971 km, giving a corrected sighting rate [csr] of .0088, which they round up to .01.

Additionally, during 1993–1999, the park rangers in the ENP recorded all road-killed animals. They did not maintain records of the mileage associated with the DOR records, and, though not stated in this paper, we assume park rangers recorded all DOR animals throughout the year as encountered, day and night.

The observations of only a few mammal species are reported in this paper. There are generic categories of "rodent," "fox," and "rabbit" and then more specific categories of opossum, raccoon, coyote, bobcat, panther and deer.

The authors then did before-and-after comparisons between the data from the 1990s and the data for 2003–2011 compiled apparently from several different sources. "Before" of course refers to before Burmese pythons were realized as becoming established in south Florida in the 1990s, and "after" refers to this past 10 years when Burmese pythons were found in the ENP. They also made comparisons of the observations of mammals made in the "core python habitat" [that being the Main Park Road in ENP] and in the two "peripheral locations" and the two extralimital locations.

There is no analysis, no statistical evaluation of results, and no science in this paper. This paper is based solely on the observations made during road driving. The bulk of the paper comprises unfounded speculation on why Burmese pythons must have been responsible for the declines they report in rabbits, opossums, raccoons, foxes, bobcats, and deer while observations of rodents, coyotes and panthers increased.

Comments on the decline of mammals

We refer to this paper as weak for the following reasons. First the authors fail to convincingly demonstrate that any significant mammal decline has occurred. Second, the authors completely fail to demonstrate that the presence of Burmese pythons has had any significant negative effect on the populations of mammals in south Florida.

The authors state: "However, our reliance on indirect estimates of mammal abundance in ENP is the result of a nearly complete absence of actual density or population size estimates based on rigorous and repeatable field methods." In other words, they have no idea how many mammals existed in ENP before or after Burmese pythons. They have no idea of the distribution, habitat preferences/requirements, or population densities of mammals in ENP before and after Burmese pythons. They don't have a clue about naturally occurring population cycles for any of these mammals in ENP.

When we state that the authors fail to convincingly demonstrate that any significant mammal decline has occurred, we are not talking about statistical significance. There probably is a statistically significant difference between the number of raccoons seen in 1996 (csr 2.79) and 2004 (csr 0.1). Rather we refer to the irrelevance of basing any such declarations on data for populations of mammals based on indirect estimates over a short time span. Mammal populations are not stable through time, they wax and wane. Most mammal populations cycle in size over a multi-year period of time that varies species to species. Additionally, populations of animals increase in response to favorable conditions such as food surpluses and mild weather, and decrease in response to drought, disease, inclement weather, and overpopulation.

Looking at the data created by park rangers from 1993 to 1999 compared to the data from 2003–2011, there appears to be a decline in the medium-sized mammal species. However, any comparison is invalid for the following reasons. The park ranger survey is based on multiple observers in multiple vehicles in operation day and night. No record was made of miles traveled, so no "corrected sighting rate" can be generated.

The 1996–97 road survey in this paper began at dusk and averaged 2 hours of driving. The surveys of 2003–2011 averaged 2.9 hours of driving at different intervals between dusk and dawn. Post-midnight mammal activity was unsampled in the 1996–97 survey, and post-midnight/pre-dawn mammals were mostly unsampled in the surveys of 2003–2011. DOR mammals killed after midnight likely are consumed at dawn by the black vultures, corvids, and raptors that exist in large numbers in ENP. These DOR animals would have been reported in the Park Ranger surveys of the 1990s, but invisible to the surveys of this study. We mention that it is our observation here in Texas that during hot weather, mammal activity is greatest in the pre-dawn hours, not at sunset.

In fact, only three of the mammal species show any dramatic variation from the 1996–97 survey to the 2003–11 survey, those

being opossums, raccoons, and deer. Of those three, deer are irrelevant to the hypothesis of the authors because deer numbers are dramatically reduced in all three recent survey areas—the core region, the peripheral regions, and the extralimital regions. To their credit, the authors do muse that " . . . the relatively low numbers of deer observed in recent surveys at peripheral and extralimital sites raises the possibility that factors other than pythons *may* have contributed to declines in deer populations" [italics ours]. We wonder why the authors then dismiss the possibility that factors other than pythons might also affect the other species.

It was misleading to have mentioned deer in this study when deer numbers were so low in every area. According to Fleming et al. (1994) " . . . Everglades deer herd contingent characteristics portray a population with a relative low abundance, low productivity, and smaller body size. . . ." In other words, even 20 years ago, deer were not plentiful in the ENP. Fleming et al. (1994) also noted that in wet periods deer were found in higher densities in restricted areas [such as the dry elevated roadways in and around ENP], but in dry periods the density of deer was reduced and deer spread into the larger areas of dry habitat; consider that the past 10 years have been the driest period in the history of ENP. Further, we question any realistic probability that pythons could have negatively affected deer numbers—there are not many pythons to begin with and only a very small portion of the python population is large enough to eat even small fawns.

Raccoons show the greatest decline of all mammals in the survey. There are several points to be emphasized. The authors note: "In the 1980s, raccoons were such nuisances in campgrounds and visitor-use areas that a control program was initiated in ENP." So in other words, the park service elected to eradicate raccoons, but now they are wondering where they all went. Even measures taken to make all refuse areas and garbage cans raccoon-proof, dramatically reducing this previously plentiful food supply for raccoons, would reduce the numbers of raccoons. It is possible that the survey of 1996–1997 was at the exact time of the greatest population of raccoons in the history of the park, the population numbers artificially elevated by a surplus of human-provided food. Such a surplus also likely increased the numbers of opossums, as they too are inveterate camp raiders like raccoons.

It's also worth mentioning that Snow et al. (2007) found raccoons to be a rare item in the diet of ENP pythons. Only two out of 54 prey items (3.7%) recovered from a sample of 56 pythons examined during 2003–2006 were raccoons. Opossums made up only 1.8% of the items. Rodents, all species (including squirrels), comprised 38.9% of the dietary items recovered from pythons in the sample.

Speed limits were lower in the 1990s in ENP than the current 55 mph limit for most of the Main Park Road from where most of the survey took place. It's possible that medium-sized mammals, including raccoons, that lived near roadways had a higher survival rate than is now possible with faster traffic.

Raccoons are subject to a variety of diseases that will devastate local populations, including rabies, pseudorabies, leptospirosis, canine distemper, parvoviral enteritis, and toxoplasmosis. The authors dismiss disease as a possible cause of the population declines seen in raccoons, opossums, foxes, rabbits, bobcats and deer, stating that there is no evidence of a disease that could have resulted in the widespread population declines in all taxa in this study. This seems to us to be extraordinarily naive. The authors go on to state: "Limited evidence of disease has been noted in the varied mammalian taxa that have declined in ENP during the time period we examined. . . ." So there wasn't any one big disease, but apparently there were several little diseases. No information is provided to explain this mysterious statement, clarifying what diseases were reported in which of the taxa.

The authors do not consider the pollution of ENP as a possible factor in the decline of raccoons and the other mammal species. There is increasing concern about pollution in ENP by methylmercury. Methylmercury is a highly bioaccumulative form of mercury that has remained a chronic water quality problem and poses a neurotoxic threat for wildlife and humans in ENP (Axelrad et al., 2011.) Because the diet of raccoons and opossums include a high percentage of aquatic and semi-aquatic animals, both carry heavy, even toxic loads of mercury. The ongoing drought in ENP has concentrated water and perhaps has concentrated toxin loads in the vertebrates in ENP.

The flow of fresh water through the Everglades is steadily declining. The ENP is the driest it has been in recorded history. It is so dry that in 2010 the ENP was removed from the list of Ramsar Wetlands of International Importance. The dramatic reduction in water in the ENP has undoubtedly affected all of the mammal species in this study. The authors summarily gloss over any effect with the following statement: " . . . other than changes in water-management regimes, anthropogenic impacts in ENP that might result in mammal declines have not changed markedly during the last two decades." So there is an ongoing "water-management" change that has significantly reduced flow and dropped water levels to such an extreme degree that is has received international attention, but the authors don't even discuss the possibility that these eco-destructive conditions might have affected the mammal species.

We contend that the drought conditions in ENP have at least two effects on mammal populations. One is that the distribution of terrestrial mammals changes in response to conditions. For example, in the Everglades it is reported that in wet conditions, rodent population densities are high as the rodents are restricted to smaller areas; during dry periods, population density drops as animals disperse more widely (Smith and Vrieze, 1979). One obvious result of lower population densities is that individual animals are encountered at a lower rate in areas that previously had higher population densities, which would result in a reduction in the numbers of animals sighted in road surveys.

The second effect is that less water flow and decreased acreage of inundated land surface reduces the food base for terrestrial predators of fish and crustaceans such as raccoons and opossums. It also crowds aquatic predators such as alligators into the limited suitable water holes (Fujisaki et al., 2011). This, in turn, makes activities near water more hazardous for terrestrial animals that come to water to drink or forage.

The authors state: " . . . raccoons and opossums often forage near the water's edge, a microhabitat frequented by ambushing

pythons." We find it hard to believe that raccoons and opossums ever casually amble near the water's edge in an area with probably the largest alligator population in the country. Of course, pythons also have to be vigilant when near water in ENP, as pythons at all age and size classes are potential prey for alligators. The GCRAP camp never misses a chance to claim that pythons eat alligators. It has happened, but it is an incredibly rare event; however, alligators readily feed on pythons. In dry times when the alligators are crowded and hungry, it is dangerous for pythons to get too close to the water. [We digress here to mention that we can find only one report of an alligator being eaten by a python (Snow, 2007), that being the well-circulated photo of the dead headless python with the gator hanging out of a gash on the python; in that case, the bones of the skull of the ingested alligator were crushed, evidence that it was dead prior to being encountered by the python. We note that the recent report of Fujisaki et al. (2011) does not mention python predation on alligators.]

Dorcas et al. make the following unsupported statement: "These species [referring to the species in their survey] can serve as proxies for species of conservation concern that often are more difficult to monitor because of low densities, spotty distributions or secretive behavior." No, they can't! This is a ridiculous self-serving fiction that is created by the authors; undoubtedly it will serve as a reference in a future GCRAP paper.

The authors write: "Additionally we documented slight increases in sighting rates of rodents, coyotes, and Florida panthers within ENP. However, the overall numbers for these groups are low both before and after python proliferation, making firm conclusions regarding the status of their current populations difficult." In light of the hypothesis that the authors are trying to support, it seems impossible that under a regime of python predation so strong as to devastate the populations of middle-sized mammals that the population of the most common prey found in the diet of ENP pythons, rodents, would increase. It seems equally unlikely that the populations of two other apex predators, coyotes and panthers, would increase if pythons had consumed their prey base. The authors declare they are unwilling to make a firm conclusion about these animals because of the low numbers, yet they seem to be completely willing to blame pythons for rabbits, bobcats, and foxes, those being populations with similarly low numbers.

We note that two of the authors of this paper, Reed and Mazzotti, are co-authors of a recent paper on trapping Burmese pythons (Reed et al., 2011). In summary, that paper recounts the unsuccessful attempts to trap Burmese pythons in an area known as Frog Pond. The study took place in 2009, at the height of Burmese python populations in south Florida, and just before the two ensuing cold winters significantly reduced python numbers by nearly half. Frog Pond is an area on the eastern margin of ENP just north of the east end of the Main Park Road. Frog Pond was believed to be the area with the densest concentration of pythons. The authors report that 6053 trap-nights resulted in three python captures; 37 rodents also were trapped. After the project ended and the traps were removed, this 550 ha (1360 acres) area was harrowed. This revealed a total of 11 Burmese pythons. Over the several days it took to harrow the entire area >200 rats were daily observed fleeing from the tractor and harrow. We note that in the discussion of this paper, Reed and others propose that the trapping experiment failed because there were not many pythons and there was an immense population of rodents that served as prey for the pythons present in the area.

Because of the failure of Dorcas et al. to even mention this paper, despite Reed and Mazzotti being authors of both reports, we propose that a lie of omission is committed. It simply cannot be ignored that one GCRAP paper states that their study failed because there were few pythons and too many prey animals, while another contends that the "apparent incredible density of pythons in ENP" is responsible for the near extirpation of prey animals in the entire region. By this act, the extraordinary bias of the GCRAP researchers and the government agencies they represent are well illustrated.

For the reasons we have stated, we feel that this paper in no way conclusively demonstrates that any significant decline has occurred that cannot be considered as the result of natural processes, diseases, normal population cycles, and the increasingly dry conditions in ENP. Only raccoons and opossums have shown any significant reduction of numbers, but there are particular circumstances for those two species that better explain any changes in population numbers.

Comments on the hypothesis of the authors

The essence of the hypothesis is that mammal populations in ENP have declined and pythons are the cause.

We question why the authors did not include Burmese pythons in these surveys? What was the corrected sighting rate of Burmese pythons in the road surveys and why are these figures not included in this paper?

In fact, Burmese pythons have never appeared to be plentiful in anything other than GCRAP press releases and media interviews. ENP Superintendent Dan Kimball stated: Encounters with pythons are very rare. . . ." (Puckett, 2012). We point out that Reed and Rodda (2009) state that one python was encountered in the Everglades for every 1,318 man-days of searching. This was in 2009, the year with the highest numbers of pythons reported. Also, in the previously mentioned study of Reed et al. (2011) that also took place in 2009, standardized searching of the Frog Pond study area found zero pythons. The numbers of reported pythons from all sources in 2011 dropped nearly 50% from the 2009 high (National Park Service, www.nps.gov/ever/naturescience/burmesepython.htm.)

Let's do the math. We'll use the GCRAP numbers from 2009, even though pythons have become much more scarce since then. Then it required 1,318 man days of searching to encounter a python. A "man-day" is considered to be one person working for 8 hours, so that is 10,544 hours of searching. Let's say that person was driving rather than walking. The authors state that the speed of the vehicles used in their road surveys was 55 km/hr to 70 km/hr; we'll calculate using an average speed of 62.5 km/hr. So a person would drive an average of 659,000 km (409,484 mi) to find a python. That is a corrected sighting rate of .00015. In other words, one or fewer Burmese pythons would have been sighted in all the surveys combined and Burmese pythons would be the rarest species in this study

except for those species with a csr of zero.

Of course the two methods of collection are not exactly comparable. The encounter rate when searching for Burmese pythons is undoubtedly lower because the pythons are well camouflaged when in grasses and brush. However, even if the encounter rate for road collecting is higher by a factor of 100, Burmese still would have a csr of .015, which is essentially the current csr of the raccoons [csr .02] and opossums [csr .01] in ENP that the authors declare are nearly extirpated. It is a major fault of this paper that the numbers of observed Burmese pythons, ostensibly the focus of this study, were not included in the study.

Nevertheless and not surprisingly, this paper concludes with the following transparent and self-serving statement: "The magnitude of these declines underscores the *apparent incredible density of pythons* in ENP and justifies intensive investigation into how the addition of novel apex predators affects overall ecosystem processes." [italics ours]. We consider this statement to be an intentional, gross, and dishonest misinterpretation of the facts.

Correlation versus causation

This paper does not prove that there have been major or significant declines in most of the mammal species that were incorporated into the surveys. Even the apparent decline in raccoons and opossums are more likely the result of natural processes, diseases, normal population cycles, and the increasingly dry conditions in ENP than due to predation by a novel predator that is rare and seldom encountered. There are simply no data of any sort other than the presence of pythons to support the hypothesis of the authors that pythons are eating the ENP mammals into oblivion.

Even if there were declines in medium-sized mammals that were proven to not be the results of natural factors in the environment of populations of mammals in the ENP, this paper does not prove that Burmese pythons have had any effect of any sort on the mammals in ENP. It may be that the populations of several species have declined at the same time that the population of Burmese pythons increased but there is zero evidence that the two changes are more than random coincidence.

Gurevitch and Padilla (2004) neatly sum up our major criticism of this paper with the following observation: "Existing data on causes of extinctions and threats are, in many cases, anecdotal, speculative, or based upon limited field observation. Although it is clear that obtaining quantitative and experimental data are impossible under many circumstances, the problem remains that correlation is too often assumed to imply causation."

Deception

To conclude, this paper is no more than a report on observations made of mammals on the roadways in and around ENP. This paper is a preliminary report that someday may be of interest to future mammal research. But this paper neither proves that there is a decline in mammal populations, nor does it prove that Burmese pythons have had any measurable effect on mammal populations, either negative or positive.

But this paper has been adroitly used by the GCRAP camp to deceive the media and the public into believing that it was proven beyond doubt that pythons ate all the mammals. GCRAP researchers have released press releases after every paper they have published. On the day this paper was released, 30 January 2012, there was a press release that was forwarded to all the major news outlets. On that day the AP wire story by Matt Sedensky had a headline stating "Pythons apparently wiping out Everglades mammals."

The GCRAP camp boldly seeks to advance its agenda through the media and this aberration of publicity apparently goes to the top. In a press release for this paper from USGS, Director Marcia McNutt states "Pythons are wreaking havoc on one of America's most beautiful, treasured and naturally bountiful ecosystems" (Puckett, 2012) [This is, at best, an unproven opinion.]

A press release from Virginia Tech (Davis, 2012 begins with the deceptive and incorrect title: "Virginia Tech wildlife ecologist links severe declines in Everglades mammals with invasive pythons." [No such link is even claimed in this paper.] In the release co-author Willson is quoted: "Our research adds to the increasing evidence that predators, whether native or exotic, exert major influence on the structure of animal communities. The effects of declining mammal populations on the overall Everglades ecosystem, which extends well beyond the national park boundaries, are likely profound, but are probably complex and difficult to predict." [In fact, no "research" published in this paper (or any other paper on Florida pythons co-authored by Willson) produces any irrefutable, authoritative evidence that pythons have done quantifiable ecological damage of any sort.]

Co-author Reed is quoted as saying: " . . . it has apparently taken only 11 years since pythons were recognized as being established in the Everglades for researchers to implicate pythons in the same kind of severe mammal declines. . . ." (Puckett, 2012). [This is in comparison to brown tree snakes in Guam, which, in fact devastated bird populations, not mammal.]

Most quotes from authors Dorcas, Reed and Willson imply that pythons are the cause of the mammal decline, but in general they do not state that this is proven. But the media snapped up the story and it ran in almost every major media outlet that pythons had eaten 90% of the mammals in the ENP. Wayne Pacelle of the Humane Society of the United States repeated this several times in an interview on the Dianne Riehm Show on NPR. A press release on the Nature Conservancy website (Nature Conservancy, 2012) states that Kris Serbesoff-King, an associate director of conservation for the Nature Conservancy "called the drastic loss of common mammals in the Everglades due to Burmese pythons, reported by the Florida [sic] Academy of Sciences, 'really scary' and worries about the repercussions for all wildlife and for Everglades restoration." [A theatrical statement that is a misinterpretation of this study and is completely misleading.]

Here the act of deception is the failure of USGS and USFWS to make any attempt to correct the media stories. By their absolute silence we assume that they were not concerned that this research was being misinterpreted and exaggerated.

To his credit, Dr. Frank Mazzotti, one of the authors, came forth and posted a blog on the Huffington Post and stated, among other things, that "With few exceptions you would get that

impression from the media coverage that hoards of rampaging snakes were vacuuming up mammals in the Everglades. We don't know that. . . ." He goes on to give an insightful evaluation of this study, and then states that there may well be factors other than pythons that affect mammals in ENP (Mazzotti, 2012).

We note the statement at the bottom right of the first page of the paper: "The authors declare no conflict of interest." At first we were angered—of course the GCRAP camp in general and every author of this paper has a clearly demonstrable vested interest, both financial and professional, to see that pythons are painted as being destructive and dangerous creatures wreaking havoc in south Florida. Many of the authors have directly benefited in one way or another from the more than 100 million taxpayer dollars funded by the military and the Congress to study brown treesnakes in Guam, and all of them have received money to work on python projects in Florida. They now deliberately manipulate the media, ignore criticism, and plan to repeat their Guam success in obtaining major funding and grants as they "study" the Burmese python and the other large constrictors that will be added to the Injurious Wildlife List of the Lacey Act. Then came the realization that the authors really hadn't lied—this is their interest and their agenda. There is no conflict.

The poor quality of the publications and the biased press releases that are issued by the federal regulatory agencies involved in the Burmese python issue in southern Florida are troubling. It's time for the Department of Interior to change the editorial and review process of the publications and to closely monitor or restrict the direct interaction of the GCRAP camp with the media. If even the director of USGS can't honestly and correctly represent the research supervised and funded by her agency, perhaps it's time to clean house.

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