



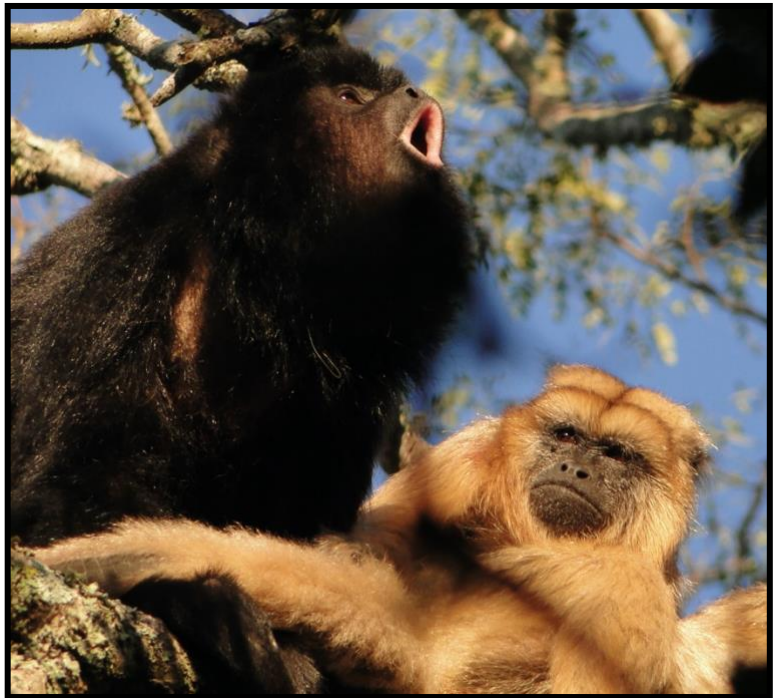
Conservation Action Network (CAN)

ASP Action Letter: VOLUME 1, ISSUE 5, AUGUST 2020

Best Practices in Field Primatology in the Age of COVID-19

In a recent commentary published in the *American Journal of Primatology* titled "Is 2020 the year when primatologists should cancel fieldwork?", Michael Reid proposed that "the risk of bringing this virus into our study ecosystems is too great and that primatologists should cancel all field research until the pandemic ends or a vaccine/reliable treatment is widely available" (Reid 2020). Although there is no evidence of wild primate exposure to SARS-CoV-2 as of yet, infection studies in two macaque species (*Macaca fascicularis* and *M. mulatta*) demonstrate disease progression that parallels what has been seen in humans (Rockyx et al. 2020; Shan et al. 2020), and the probability of transmission from humans to wildlife, including nonhuman primates, is high (Gillespie 2019; Gillespie and Leendetz 2020; Lappan et al. 2020; Melin et al. 2020; Schmitt et al. 2020). In light of the significant risk that a panzootic event may occur with devastating consequences for biodiversity, **we strongly encourage all primatologists to consult with site-specific and species-specific experts, epidemiologists, and public health officials in deciding whether to engage in field research.**

Clearly, as members of research teams, conservation activists, educators, and concerned citizens, individually and collectively we are facing critically important personal and career decisions in response to the pandemic. The primary goal of this ASP-CAN action letter is to initiate a discussion of first principles or best practices for field primatologists during the COVID-19 pandemic. We acknowledge that countries that harbor wild primate populations differ in their conservation laws, culture, religious beliefs, healthcare systems, food security, and resources and personnel available to protect biodiversity. In addition, the risks of COVID-19 to different primate species may vary considerably. Therefore, what might be considered 'best practices' for one species or one region might not be considered 'best practices' for a different species or region.



Black and gold howler monkeys, *Alouatta caraya*, photographed by Mariana Raño

Why we drafted these principles

The authors of this ASP-CAN action letter have studied nonhuman primates in Africa, Madagascar, Central and South America, and Southeast Asia, and have a combined total of 154 years of field experience. Based on recent conversations we have had with colleagues, epidemiologists, and officers of several national and international primate societies and conservation NGOs, we felt it was important to initiate a discipline-wide discussion concerning best field practices during the COVID-19 pandemic. It is our hope that our experiences and insights can assist you, and your collaborators, students, post-docs, field assistants, project personnel, and local community members in your decision-making.

We note that the Sociedad Latinoamericana de Primatología (SLAPRIM) in conjunction with over 20 signatory professional organizations, including the International Union for the Conservation of Nature (IUCN), the Species Survival Commission (SSC), and the International Primatological Society (IPS), have created [specific guidelines](#) to protect primates living in wild, captive, and semi-natural settings from exposure to COVID-19. These measures also are designed to protect researchers, park rangers, their families, and other personnel working with primates. These guidelines build on the "[Joint Statement of IUCN Wildlife Health & Primate Specialist Groups on COVID-19 and Great Apes](#)" and the "[IUCN PSG Advisory for Conservation Teams Operating in Great Ape Habitat During the COVID-19 Pandemic](#)", are broadly applicable to habituated primates, and are particularly relevant to the current COVID-19 pandemic. In addition, the [IPS website](#) includes a link to several COVID-19 resources and blog posts that are extremely informative.

"...to study, conserve, respect and benefit wild primate populations, their habitats, and the local human communities"

As outlined in the [Code of Best Practices for Field Primatology](#), and consistent with our fundamental goal "to study, conserve, respect and benefit wild primate populations, their habitats, and the local human communities" (Riley et al. 2014, p. 4-5), is the underlying doctrine; **do no harm**. We each face a set of important ethical issues in conducting field research on wild nonhuman primates, and are challenged to confront these issues as part of the process associated with obtaining research permits, completing grant applications, and in adhering to the requirements of institutional animal care and human subjects committees and the laws of the country in which the research is conducted. In addition, many primatologists work in areas where strepsirrhines, tarsiers, monkeys, and apes are under significant threat from humans, and therefore face the difficult choice of staying away and closing down a field site to avoid introducing COVID-19 to their study community, while fully aware that their absence may result in an increase in primate deaths due to illegal hunting, poaching, logging, and habitat loss. Closing down a field site also may have significant economic consequences for members of the local human communities (Trivedy 2020).



Yellow-cheeked crested gibbon, *Nomascus gabriellae*, photographed by Stacey Tecot

We support our fellow primatologists in using their best judgment in weighing these risks and offer a set of guidelines to consider and to help direct decision-making in the time of COVID-19 while also adhering to the critical doctrine of ‘do no harm’.

Principles

1. **Travel.** Given the highly contagious nature of the virus, and the elevated risk of contracting COVID-19 in indoor spaces (e.g., dormitories, hotels, restaurants, airports, airplanes, buses, and other forms of public transportation), we strongly recommend that researchers and their students refrain from traveling to primate field sites from regions in which the virus has not been contained or eliminated until there is a widely available vaccine, or the [World Health Organization](#) or other credible public health agencies have declared the pandemic over. This is true for international travel and within-country travel. In many primate habitat countries, for example, the greatest number of confirmed cases of COVID-19 is centered in large cities that have no wild primates. However, a large proportion of researchers who travel to conduct primate field studies may live in large cities and urban centers and therefore increase the likelihood of spreading the virus to rural communities and primate field sites. Similarly, we recommend that field researchers who make a decision to enter a field site because they have recently tested negative for the virus or live in areas where community spread is limited, should not subsequently return to areas with the potential for community spread until they have completed their field stay.

We urge all researchers to consult with other members of their research team, knowledgeable colleagues, home institutions, and funding agencies, and for students to seek approval of their supervisors, prior to considering travel to a field site.

2. **Reducing virus transmission risk.** Any researchers or project personnel, whether [manifesting symptoms of COVID-19](#) or not, must self-quarantine for at least 14 days upon arrival. Anyone who has been in contact with someone suspected of having the coronavirus must also self-quarantine for at least 14 days. If the person is already in the field and self-isolating at the field site, the quarantine should include no contact with primates or other wild species, as well as other humans during the quarantine period. If this is impossible given limited space and shared facilities at the field site (shared dormitories, communal kitchen), we recommend quarantining off-site either at a hotel or a public health facility designated by the local government.
3. **Mitigating impacts of site closure.** Situations exist in which closing down a field site or community conservation project, or reducing the number of field personnel, may cause immediate and/or future harm to the local human and nonhuman primate communities. The absence of project personnel or forest/habitat guards may result in an increase in illegal hunting, animal capture, and deforestation. In this case, we recommend that, when feasible, all remaining personnel at field sites and reserves be restricted to people from the local community or to project personnel who have been in residence at the field site for several months and have not been exposed to the virus. If this is not possible, we recommend reducing the number of project personnel to the minimum possible size. We recommend that all project personnel wear face coverings while in the forest/habitat and in social settings, conduct daily wellness checks, and social distance whenever possible. In localities where COVID-19 tests are available and travel to testing facilities does not require public transportation or close contact with others, we recommend that all project personnel get tested for the virus every two weeks, where feasible.
4. **Project Personnel.** We strongly advocate that all remaining project personnel be given free access to masks, thermometers, soap, and hand sanitizer whenever possible. Hand sanitizer also can be made by formulating a 60% alcohol solution. If masks cannot be purchased, detailed instructions on how to make a face mask to protect against

the virus are available using the following links ([homemade mask](#) and [child size masks](#)). Guidelines on how to wear and maintain/store/clean masks and infectious surfaces are available at the [CDC](#) and [Hopkins Medicine](#) websites. Regrettably, many field sites do not have funding to purchase masks, materials to construct masks, thermometers, or hand sanitizer, all of which are essential for protecting project personnel, their families, and wildlife. We urge the primatological community and our professional societies to act immediately and initiate a fund drive across their membership that can be directed to primate habitat country researchers to provide masks, mask making equipment, thermometers, soap, and hand sanitizer to field site personnel. Such a fund has been created by the American Society of Primatologists. See TAKE ACTION below for information on how to **donate to or access COVID-19 emergency conservation funds**.

5. **Responsibility to provide health care for project personnel.** We feel strongly that costs associated with coronavirus testing and the health care of project personnel be included and prioritized in project costs and not be paid for by project personnel. In some primate habitat countries, citizens may have access to free national health care. This is not the case, however, in other countries. It is the responsibility of project directors or NGOs to have site-, region-, and/or country-specific knowledge of health care options, to do what they can to safeguard the health of all project personnel, and to cover the costs of COVID-19 related health care for project personnel.

6. **Support for maintaining local capacity and the well-being of local communities.** Closing field research sites and conservation projects may result in devastating economic losses to project personnel and members of the local community leading to increased [poverty, food insecurity, and the spread of COVID-19](#). This also can lead to attrition in the primatology and conservation workforce, as project personnel are forced to seek other forms of employment. A reduction in local primate experts and advocates can have potentially long-lasting detrimental effects on conservation. In cases in which it is necessary to temporarily shut down a field project, researchers should make a concerted effort to identify sources of funding to continue to pay project personnel, through the submission of an emergency grant proposal or through the appropriate allocation of funds that were originally set aside for travel, meals, researcher support, or researcher salary. ASP-CAN will provide letters to funding agencies supporting the critical need to do this when appropriate. Primate societies, professional organizations, and granting agencies should strongly consider creating grants for this purpose or allow already approved funds to be reallocated for this purpose. Researchers who have been awarded conservation grants from the American Society of Primatologists should contact conservation@asp.org to obtain approval to reallocate funds for these purposes. PIs also should contact their funding agencies and institutions to request bridge funds to keep people employed and safe.



Red-bellied lemur, *Eulemur rubriventer*, by Stacey Tecot

7. **Advocate for students and others whose careers are vulnerable.** Temporarily ending field research will result in critical gaps in data collection and continuity that have negative consequences for long-term research projects and for the career trajectory of students, lab techs, postdocs, and contingent and untenured faculty. Therefore, we feel strongly that it is the responsibility of tenured faculty, emeritus professors, and faculty advising students to work proactively with their academic departments, faculty senate, and institutional administrators to mitigate these negative consequences by extending the timeline for students to complete degree requirements, helping to identify alternative financial support for these students, allowing students to substitute library research for field

research, and adjusting the requirements used to evaluate job performance for lab techs, postdocs, and faculty, including promotion and tenure.

8. **Human-wildlife distancing.** Given the potential for a panzootic, we urge researchers whenever possible to temporarily shut down a field site or to maintain a presence but not interact with wildlife. In those settings in which project personnel are required, we recommend maintaining a distance of at least 7 meters from primates when wearing a mask and at least 10 meters if not wearing a mask (these mirror the [IUCN recommended guidelines for protecting great apes and their habitats](#)). Although the initial COVID binding site (ACE2) affinity is higher for catarrhines and some lemurs compared to other primates, viral entry proteases and other viral targets may impact susceptibility to infection and disease severity in all primates (Melin et al. 2020). Therefore, under the principle of ‘do no harm’, we recommend being cautious and assuming that all primate species are at risk.

Interactions with wild animals including nonhuman primates should be avoided, except in emergency circumstances (e.g., releasing an animal caught in a snare, rescuing an orphaned or pet primate). Project personnel should wear masks when moving around their field sites, especially when located within 10 meters of a wild animal. In all instances, project personnel should remove all human-generated waste materials from the habitat, [disinfect](#) any structures/surfaces that are used by project personnel and potentially contaminated, and always store garbage in animal-proof containers and regularly disinfect them. Alternative work that may be deemed low risk to wildlife such as monitoring field site borders, collecting ecological data while avoiding any contact with wildlife, inputting previously collected data, making masks and soap, creating and delivering relief packages to community members, monitoring camera traps, and creating conservation outreach and educational materials should be considered.

9. **Primate capture.** There should be a moratorium on all primate trapping, regardless of project goals, during the pandemic. This includes suspending primate transfer and translocating activities, except in emergency circumstances.

Again, we strongly encourage all primatologists to consult with site-specific and species-specific experts, epidemiologists, and local public health officials in deciding whether to engage in field research. Moreover, this action letter is designed to be a working document and the beginning of a discussion on how best to protect primates and their habitats during the time of COVID-19. We encourage input from all primate scientists in improving this document.

Take Action! The Time to Act is Now!

- A. **Do no harm!** We strongly encourage all primatologists to consult with site-specific and species-specific experts in deciding on any course of action.
- B. **Tenured faculty and primatologists in positions of authority and influence have a special responsibility to be proactive in working with and alerting their university community, national and international granting agencies, research institutions, and professional societies to the particular challenges faced by field primatologists during the COVID-19 pandemic, and by advocating for measures to overcome these challenges, including identifying alternative pathways for student progress and developing appropriate job assessment criteria given the conditions of the pandemic.**
- C. **Primate societies and related associations should initiate fund drives across their membership and the public that can be directed to aid primate habitat country researchers in providing masks, hand sanitizer, and job security to field site personnel.**
- D. **To donate to the COVID-19 Emergency Conservation Fund, please go to the ASP website ([asp.org](#)), click the DONATE button on the home page and select the “Emergency COVID Conservation Fund”. Requests for an application to receive COVID Emergency funds should be sent to conservation@asp.org**

Authors: Paul A. Garber (p-garber@illinois.edu), Janice Chism (chismj@winthrop.edu), Stacey Tecot (stecot@arizona.edu), Martin Kowalewski (martinkow@gmail.com), and Thomas R. Gillespie (thomas.gillespie@emory.edu)

References and Informational Websites

Non-Human Primate COVID-19 Information Hub, (<https://umnadvet.instructure.com/courses/324>) for up-to-date information to address questions and concerns.

Gillespie, T. R. (2019). Protecting wild primates during the novel corona virus pandemic and beyond. *Asian Primates Journal*. 8:1. ISSN 1979-1631.

Gillespie, T. R., & Leendertz, F. H. (2020). COVID-19: Protect great apes during human pandemics. *Nature*, 579, 497. <https://doi.org/10.1038/d41586-020-00859-y>

Lappan, S., Malaivijitnond, S., Radhakrishna, S., Riley, E.P. and Ruppert, N. 2020. The human-primate interface in the new normal: challenges and opportunities for primatology in the COVID-19 era and beyond. *American Journal of Primatology*. DOI:10.1002/ajp.23176

Melin A. D., Janiak M. C., Marrone F., Arora P. S., Higham J. P. 2020. Comparative ACE2 variation and primate COVID-19 risk. *bioRxiv*, 2020.04.09.034967

Reid, MJC. 2020. Is 2020 the year when primatologists should cancel fieldwork? *American Journal of Primatology* <https://doi.org/10.1002/ajp.23161>

Riley EP, MacKinnon KC, Fernandez-Duque E, Setchell JM, and Garber PA. 2014. Code of best practices for field primatology. https://www.asp.org/resources/docs/Code%20of_Best_Practices%20Oct%202014.pdf

Rockx, B., Kuiken, T., Herfst, S., Bestebroer, T., Lamers, M.M., Munnink, B.B.O., et al. 2020. Comparative pathogenesis of COVID-19, MERS, and SARS in a nonhuman primate model. *Science* 368, 1012-1015. <https://doi.org/10.1126/science.abb7314>

Schmitt, CA, Bergey, CM, Jasinska, AJ, Ramensky V, Burt, F, Svardal, H, Jorgensen MJ, Freimer NB, Grobler JP, Turner, TR. (2020). ACE2 and TMPRSS2 variation in savanna monkeys (*Chlorocebus* spp.): Potential risk for zoonotic/anthroponotic transmission of SARS-CoV-2 and a potential model for functional studies. *PLoS ONE* 15(6): e0235106. <https://doi.org/10.1371/journal.pone.0235106>

Shan, C., Yao, Y.F., Yang, X.L., Shi, Z.L., Zhou, Y.W., Wu, J., et al. 2020. Infection with novel coronavirus (SARS-CoV-2) causes pneumonia in *Rhesus macaques*. *Cell Research* (early view). <https://doi.org/10.1038/s41422-020-0364-z>

Trivedy, C. 2020: Is 2020 the year when primatologists should cancel fieldwork? A reply. *American Journal of Primatology*. DOI:10.1002/ajp.23173

Links included in the newsletter

SLAPRIM guidelines: <http://www.slaprim.org/avisos/>

Joint Statement of IUCN Wildlife Health Specialist Group & Primate Specialist Group on COVID-19 and Great Apes: <http://static1.1.sqspcdn.com/static/f/1200343/28317866/1593110330347/SARSCoV-2.pdf?token=obsvZJcG2ByX%2BkH66MBEuR5kE2E%3D>

IUCN PSG Advisory for Conservation Teams Operating in Great Ape Habitat During the COVID-19 Pandemic: http://static1.1.sqspcdn.com/static/f/1200343/28322271/1594126256053/COVID-19_advisory_for_conservation_teams_final.pdf?token=AfhtvjwDxE0mLM6Pg1kO0yVU7dU%3D

Code of Best Practices for Field Primatology: www.asp.org/society/resolutions/bestpractices.cfm

World Health Organization: www.who.int

Manifesting symptoms of COVID-19: <https://www.cd.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>

CDC guidelines on proper disinfection and use of face masks: www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html

Hopkins medicine guidelines on proper use of face masks: www.hopkinsmedicine.org/health/conditions-and-diseases/coronavirus/coronavirus-how-to-care-for-your-face-mask

Global vulnerability to poverty: <https://www.weforum.org/agenda/2020/05/impact-of-covid19-coronavirus-economic-global-poverty/>

Considerations for the cleaning and disinfection of environmental surfaces in the context of COVID-19 in non-health care settings: <https://www.who.int/news-room/q-a-detail/q-a-considerations-for-the-cleaning-and-disinfection-of-environmental-surfaces-in-the-context-of-covid-19-in-non-health-care-settings>