



Sickness and death at Mesa-area monkey farm threaten primate center viability

Rob O'Dell, Arizona Republic

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Pigtailed macaques abound in the steamy jungles and swamps of Southeast Asia.

They live in large, tight-knit social groups that can number from several dozen to as many as 50, and they love to be around water.

In the United States, however, the largest breeding facility for the species is located in the middle of a parched desert north of Mesa.

Between a gravel pit and a defense contractor that has fouled the environment over the decades, the University of Washington runs a breeding colony that has been plagued by problems in recent years.

The secluded compound is a secretive place. The Salt River Pima-Maricopa Indian Community's police won't let you step foot there and contend you can't even take photos from a distance.

The Washington National Primate Research Center touts its breeding program as a "specific pathogen free" facility that is free of certain diseases, where about 500 monkeys are supposedly healthy and viable so as to not compromise national research studies.

<https://www.azcentral.com/in-depth/news/local/arizona-investigations/2021/10/05/primate-center-monkey-deaths-transport-negligence/8373024002/>

But a seven-month investigation by The Arizona Republic found that Valley fever, a common flu-like illness caused by a fungus from the soil in the desert around Phoenix, has run rampant among the macaque colony, resulting in higher than expected rates of sickness and death.



Arizona monkey colony's water supply tainted by missile manufacturing

ARIZONA REPUBLIC

At least 47 monkeys have died from the illness over the past eight years, UW said in a statement. But the university insisted just because a monkey was found to have lesions from Valley fever during its necropsy does not mean it was the cause of its demise.

The illness also threatens the results of tens of millions of dollars in research aimed at finding cures and vaccines for some of humankind's most serious viruses and diseases: HIV/AIDS, hepatitis, Zika, Ebola and even COVID-19, and it has raised concerns about whether the Arizona site is the right location for the largest pigtailed macaque breeding facility in the United States.

"It's not just that (Valley fever) kills some of their animals, it affects the research they do with them," said Lisa Shubitiz, a veterinarian and a research scientist at the Valley Fever Center for Excellence at the University of Arizona. "It affects their ability to do this immunology research because you're limited in being able to wipe out or suppress that animal's immune system. You risk having your experiment ruined by having this disease come back."

But Valley fever is by no means the only problem facing the Washington National Primate Research Center.

<https://www.azcentral.com/in-depth/news/local/arizona-investigations/2021/10/05/primate-center-monkey-deaths-transport-negligence/8373024002/>

The monkeys at the Mesa breeding facility are drinking well water tainted with perchlorate, a contaminant leached from ponds containing rocket fuel runoff from an adjacent defense contractor. Despite recommendations that a water treatment system be installed at the breeding facility in 2016, no such precaution has been taken.

The primate center's long-term financial situation is in disarray, according to federal reports. Staff turnover has been high. Key researchers have left and leadership positions have remained open until just recently. Morale, while improving, remains low as staff has reeled from years of poor decision making and an embarrassing public sexual harassment scandal.



The Mesa facility houses more than 360 pig-tailed macaques, like these seen in Germany.
PATRIK STOLLARZ/AFP/GETTY IMAGES

What's more, the primate center has run afoul of state and local regulators. It was cited in May for failing to alert Washington state regulators that macaques imported into the state had Valley fever. And it has been cited by federal regulators for conduct detrimental to animal welfare. At least five monkeys have died since 2017 because of poor care or improper oversight.

One monkey died from dehydration after not being given water for several days because a water line was not properly affixed to its cage. Another strangled itself on a chain connected to a foraging device. A third asphyxiated after surgery because scientists did not have it fast properly ahead of time. The macaque vomited in the recovery room and died after inhaling the vomit into its lungs.

But while the primate center has taken steps to address some of these problems, Valley fever continues to represent an existential threat.

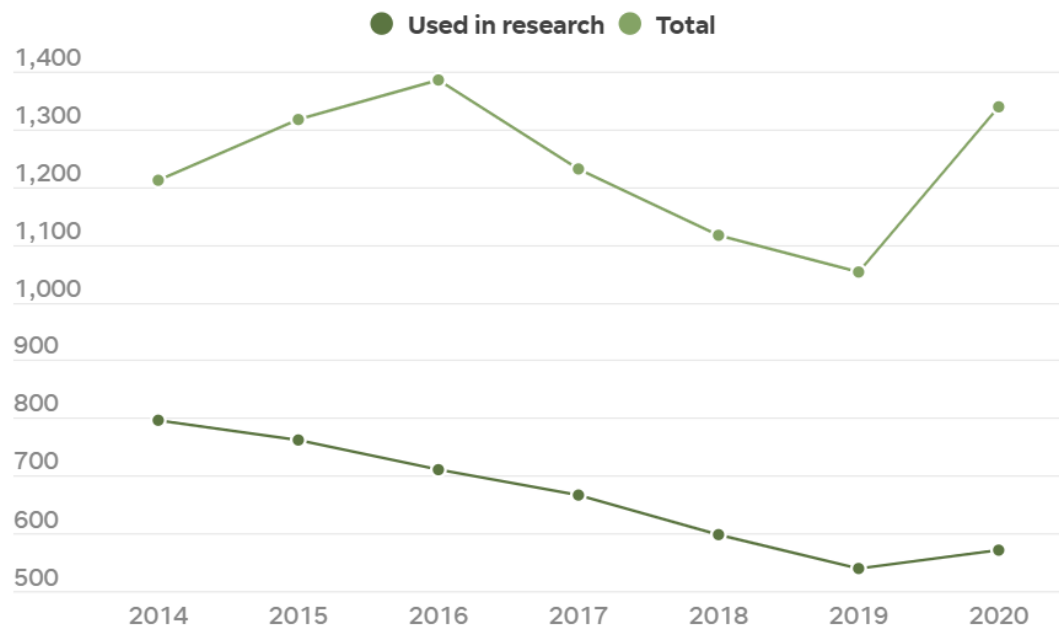
At least two University of Washington reports state the monkeys infected with the illness threaten the reliability of studies and one stated that the pigtailed macaques should not be used in HIV research, which makes up 35% to 50% of all studies involving the more than 1,000 monkeys housed in the primate center's Arizona and Washington facilities.

A 2017 internal report by a veterinarian at the Arizona center said Valley fever had the potential to [“confound research”](#) — to bias or ruin the results — because of the effect on the monkey's immune system and the potential for Valley fever to recur when the macaque's immune system is suppressed by diseases during research trials.

That's also what a team of University of Washington researchers found during a 2020 study of macaques that were experimentally infected with simian immunodeficiency virus, a retrovirus similar to HIV that infects African nonhuman primates.

Pigtailed macaques

While the total number of macaques housed by the primate center has fluctuated between 1,000 and 1,400, the number used in experiments has steadily fallen.



SOURCE: USDA Annual Report of Research Facility
Jennifer Borresen/USA TODAY

The macaque from the Arizona breeding colony previously had Valley fever but it was controlled through [antifungal treatment](#). When the macaque's immune system was suppressed by SIV during the research, its Valley fever came back.

The study's conclusion: "Macaques with a history of coccidioidomycosis (Valley fever) should be [excluded from enrollment](#) in HIV studies."

A separate 2018 report by the National Scientific Advisory Board — a report that is required to receive funding from the National Institutes of Health — found that the primate center was facing "multiple challenges" with a type of bacterial staph infection called MRSA, as well as with the simian retrovirus (a disease similar to HIV in humans) and Valley fever.

"This is very important as the latter two agents both have the potential to impact research projects and the first is a potential risk in surgically-implanted or immunosuppressed animals," the report said.

A retired certified laboratory animal veterinarian who [reviewed necropsies](#) of more than 35 macaques for The Arizona Republic went even further by suggesting that every animal at the Arizona facility has had Valley fever, even if the monkeys never tested positive for the disease.

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They represent a threat to the science. ... It's a problem for the monkeys and it's a problem for the science.

Lisa Jones-Engel, former senior research scientist at the Washington National Primate Research Center

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The veterinarian requested anonymity because the veterinary community punishes those who speak out, and despite being retired, the veterinarian feared that being identified could cause former colleagues to come under scrutiny.

The Republic contacted

10 veterinary experts and organizations in the United States and the United Kingdom to review necropsies and other records. That includes Arizona's two veterinary schools, the University of Arizona and Midwestern University in Glendale. All either declined or didn't respond.

The retired veterinarian said a large number of the necropsies that were reviewed either contained suspicions of Valley fever or pointed to Valley fever as the cause of death. The veterinarian called that "extremely surprising."

“It’s unbelievably uncommon to get one disease repeating over and over again,” the veterinarian said of the necropsies. “The whole colony has been infected. I think every single monkey there has been exposed and to some degree has had Valley fever.”

In a written response to questions from The Republic, the University of Washington said it neither “agrees or disagrees with this assertion,” adding that in desert communities a significant number of humans and animals would show antibodies for Valley fever at some point in their lives.

In August, the university asked The Republic to delay publication of its series for several weeks so it could fly primate center interim director Sally Thompson-Iritani and division chief Deborah Fuller to Arizona to give a tour of the facility to reporters and answer questions in person.

Two days before the interview, the university canceled the visit citing an uptick in COVID-19 cases. The leaders of the primate center then refused to do an interview over Zoom even though a video meeting posed no threat of coronavirus exposure.

University of Washington spokeswoman Tina Mankowski said the school would only respond to questions in writing, saying primate center leadership didn’t like the questions that The Republic was asking.

Representatives from the Salt River Pima-Maricopa Indian Community wouldn’t talk about the primate center either. They refused to release records about the facility, claiming all documents are confidential.

When The Republic flew a drone from public land near the facility, primate center employees called the Salt River Police Department. A Salt River police officer questioned Republic reporters and photographers and said the public was not allowed to publish photos or videos of the site without permission from the tribe, even if they are standing on public land that isn’t on the reservation.

The Republic followed all applicable federal laws and Federal Aviation Administration guidelines regarding unmanned aerial flights and is publishing the videos and photos it took.

After the Salt River police officer questioned three Republic journalists and collected their private information, including driver's licenses and license plates, the newspaper requested a meeting with the Police Department and tribal officials to review the Federal Aviation Administration policies that govern drone flights and any tribal concerns. The request was declined.



This facility north of Mesa is the largest U.S. breeding center for pigtailed macaques.
THE REPUBLIC

'Highly susceptible'

Valley fever is a fungus that lives in the Southwest United States, parts of Latin America and now south-central Washington state.

Spores of the fungus circulate in the air after soil is disturbed by wind, humans, animals or other forces. People and animals catch Valley fever from inhaling the spores.

Dogs and humans typically suffer only minor symptoms such as fatigue, coughing and fever. One in 100 people who get Valley fever have it travel to their blood, bones and central nervous system, according to the Centers for Disease Control and Prevention.

Pigtailed macaques aren't as lucky.



A pigtailed macaque in its cage at the Washington National Primate Research Center in Seattle. MICHAEL BUDKIE/STOP ANIMAL EXPLOITATION NOW

They are “highly susceptible” to Valley fever spreading from an infection in the lungs to disease in the rest of the body, according to an internal report by then-University of Washington veterinarian Lee Chichester.

Valley fever spreads and disseminates, gaining access to the bloodstream and the macaques bones, central nervous system and liver, Chichester’s report says. Severe clinical signs from Valley fever that were seen at the facilities include meningitis, bone lesions and draining tracts from the liver, lymph nodes and bones.

Euthanasia “must be strongly considered in many cases” because pigtailed macaques have “a more severe disease progression than is seen in other species,” Chichester’s report says.

Having to put down monkeys suffering from Valley fever has led to high mortality rates at the monkey breeding facility, exceeding the University of Washington's goal of no more than 10% per year.

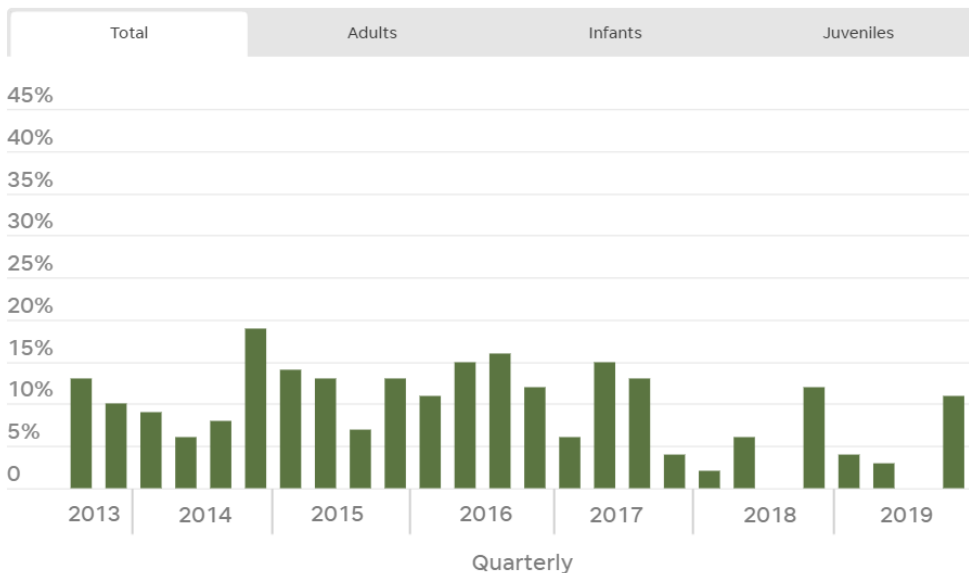
In the fourth quarter of 2014, when the facility housed about 350 monkeys, the overall quarterly annualized mortality rate hit 19% after the facility had to kill 18 monkeys because of Valley fever that year, internal UW documents and grant applications show. The quarterly annualized <https://www.azcentral.com/in-depth/news/local/arizona-investigations/2021/10/05/primate-center-monkey-deaths-transport-negligence/8373024002/>

mortality rate was 15% or more in parts of 2016 and 2017. And for some macaque populations, the death rate has been much higher.

The quarterly annualized mortality rates for infants spiked above 35% in the third quarter of 2016, internal documents show, and above 40% in the fourth quarter of 2018. In the fourth quarter of 2019, the mortality rate for infants was 17%. Death rates for juvenile macaques (ages 1 to 3) peaked at nearly 30% in the second quarter of 2017 and reached 14% in the fourth quarter of 2019, documents show.

Pigtailed macaque mortality rates

Deaths of monkeys at a Mesa, Arizona, breeding facility often exceeded the 10% limit between 2013 and 2019, especially among infants.



SOURCE: National Primate Research Center's internal documents
Jennifer Borresen/USA TODAY

Despite UW's own internal documents showing those death rates, written responses from the Washington National Primate Center disputed that the Arizona breeding colony ever had a mortality rate approaching 20%. Mankowski said the highest annual mortality rate was 9%. After being shown the documents, UW said the mortality rate for that year was 10.5%.

The university's statements said that annual numbers can vary "depending on whether you add four consecutive quarters together or multiply the number for a single quarter by 4," which is what the quarterly annualized rate is.

"This graph is an internal document meant for examining trends and identifying areas for improvement; it is not providing annual data," the statement said.

In addition to coughing, the Chichester report said that signs of Valley fever in monkeys include [diarrhea](#), [weight loss](#) and decreasing body condition. Chichester did not respond to messages seeking comment.

<https://www.azcentral.com/in-depth/news/local/arizona-investigations/2021/10/05/primate-center-monkey-deaths-transport-negligence/8373024002/>

Macaques in Arizona are having diarrhea and seeing significant weight loss at higher rates than other macaque populations in the UW system, according to grant progress reports submitted to the National Institutes of Health.

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Part of what makes a (nonhuman primate) a valuable animal model is that it responds similarly to humans. A naïve immune system that has not seen any pathogens does not model the human condition.

University of Washington statement

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In the second half of 2019, Arizona had 77 cases of macaques with diarrhea, a third more than the next highest UW macaque facility and more than three times the UW facility with the third highest number.

In all, the Arizona facility had 40% of all the diarrhea cases for the six-month period.

Again, the Washington National Primate Research Center denied the numbers and conclusions from its own

internal documents.

“There is no indication that diarrhea is associated with valley fever, and our animals are not exposed to hazardous levels of perchlorates,” the UW written response said.

It said there are more monkeys in Arizona than at other sites, and the rates of the diarrhea in the monkeys are similar in Arizona (2%) and Washington (4.6%). Additionally, the number of monkeys with low weight loss is 11% in Arizona and 5% in Seattle, the response said.

“Weight loss/thin cases are more often used to identify animals that the veterinarians think are on the thin side to ensure that they get extra nutritional support, so these cases are not necessarily indicative of active weight loss,” Mankowski’s response said.

'Should be excluded from enrollment'

Chichester, in his 2017 report, said Valley fever had the potential to “confound research” — meaning to bias or potentially ruin the conclusions.

That’s because of Valley fever’s “risk of recrudescence” during research — which means Valley fever reemerges after a period of seemingly being cured.



These pathogenic fungi reside in soil and can cause the infection coccidioidomycosis, or Valley fever.
GETTY IMAGES/ISTOCKPHOTO

In 2020, a team of University of Washington scientists working for the National Primate Center in Seattle discovered this while evaluating a novel hepatitis B virus vaccine for people living with HIV.

Two years prior to being enrolled in the study, a [macaque was coughing](#) while at UW's Arizona facility and later tested positive for Valley fever. It was treated with an antifungal agent and tested negative three times over the course of a year. Three months before the study, the macaque was moved to Seattle and housed strictly indoors.

During the research, the monkey was infected with simian immunodeficiency virus — similar to HIV in humans — then given combination antiretroviral therapy similar to the medicines a person living with HIV would receive.

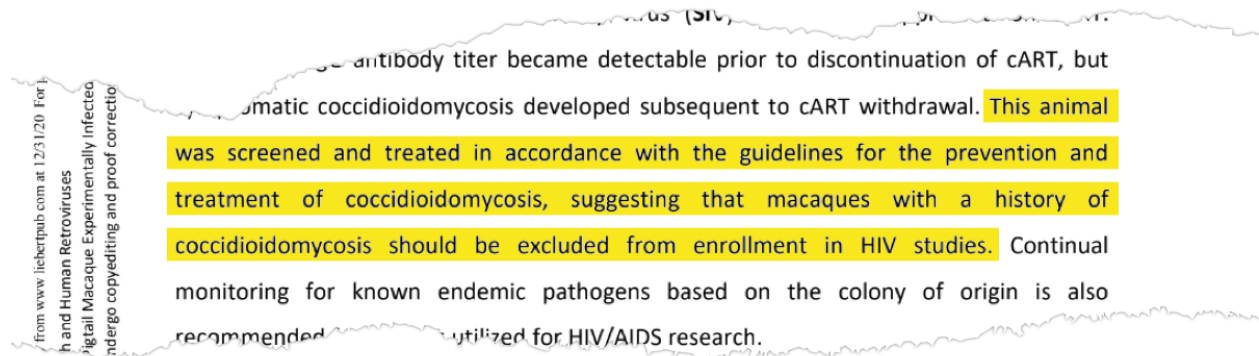
The monkey's Valley fever became detectable prior to discontinuation of the antiretroviral therapy. The monkey became symptomatic two weeks after the treatment was finished. It had difficulty breathing, "marked by open mouth breathing and audible wheezing," the study said.

The researchers sedated and intubated the monkey, but couldn't stabilize its breathing. The macaque had to be put down.

“To our knowledge this is the [first case report](#) documenting recrudescence of a naturally occurring” Valley fever in a nonhuman primate enrolled in HIV/AIDS-related research, the study said.

The study called for screening nonhuman primates in HIV/AIDS research when there is potential for fungal exposure, especially those from outdoor colonies where the illness is endemic, such as Arizona.

Nonhuman primates with a history of Valley fever “[should be excluded](#) from enrollment” in SIV research “regardless of successful anti-fungal treatment” and negative tests, the study said.



In its response to questions from The Republic, UW said it is up to individual researchers to determine whether to exclude monkeys that have previously had Valley fever. UW said it provides a full health history to anyone who uses the monkeys for research.

UW added that nine Valley fever positive monkeys had been used in HIV/SIV research in the last two years and “all studies were completed without incident.” UW insists that’s even true for the 2020 study where the monkey’s Valley fever came back and it needed to be put down.

Monkeys previously positive for Valley fever also were used in other kinds of research. That includes a study to assess whether a COVID-19 vaccine created an immune response, the UW statement said.

“Comparing key immunological readouts in these animals to others that had no history of (Valley fever), there have been, to date, no remarkable difference or clear impact of (Valley fever) on the immune response data and therefore, no reason to exclude them,” the statement from UW said.



Drone footage posted to YouTube shows a secluded compound north of Mesa where pigtailed macaques are bred for research.

VIA YOUTUBE

UW insists the previous research done with Valley fever positive monkeys already examined the relationship between variables and outcomes so “it is not necessary to go back and question previous research performed with (Valley fever positive) animals.”

The National Institutes of Health, which provides much of the money to raise macaques for scientific research, agreed. It told The Republic that past studies involving Valley fever positive macaques are sound.

“Even with a low rate of unrecognized (Valley fever) in macaques in past studies, results of those studies remain valid due to the way research studies are designed, with treatment arms being compared to control arms and replication, randomization, and blinding being applied to all study groups,” the NIH said in a statement. “The same study design principles are applied to human clinical trials to ensure that results remain valid in light of subsequent knowledge about potentially confounding factors.”

Monkeys test positive in Washington

<https://www.azcentral.com/in-depth/news/local/arizona-investigations/2021/10/05/primate-center-monkey-deaths-transport-negligence/8373024002/>

Contrary to statements made by the NIH and the University of Washington, however, the 2020 study into HIV is not the only evidence from the University of Washington that Valley fever can affect the monkeys long term and appear after a period of dormancy.

In May, after People for Ethical Treatment of Animals filed a complaint, UW gave the Washington Department of Agriculture a list of all the monkeys it had imported to the state that have had Valley fever.

There were 45 monkeys on the list. But Valley fever was not diagnosed in 19 of them until after they had arrived in Seattle.



Lisa Jones-Engel earns the trust of performing monkeys by quietly sitting with them in Bangladesh. In 2014-15, Jones-Engel was collecting biological samples from the monkeys.

LYNN JOHNSON

Since the monkeys are kept indoors and Valley fever isn't present in Seattle, it means the disease only presented itself after the monkeys had left Arizona. The median number of days before the monkeys tested positive after arriving in Washington state was 47.

Three of the monkeys didn't test positive until more than 15 months after arrival.

Lisa Jones-Engel, a former senior research scientist at the Washington National Primate Research Center and UW professor who left in protest in 2019, said the data shows that the monkeys control the infection for a while and then something — whether that's being exposed to disease in research or being exposed to other stressors — causes the Valley fever to come back.

<https://www.azcentral.com/in-depth/news/local/arizona-investigations/2021/10/05/primate-center-monkey-deaths-transport-negligence/8373024002/>

The issue is that when involved in research such as HIV, an investigator wouldn't know if the monkey's response to the vaccine was because of the vaccine or because of the monkey's underlying Valley fever, said Jones-Engel, who now works at People for the Ethical Treatment of Animals.

She said it may be in the monkey's health history, but said she doubted that UW points out all of the potential implications of the monkey's Valley fever.

This makes the results of the research suspect, she said.

"That's the crux of so much of this," Jones-Engel said. "They represent a threat to the science. ... It's a problem for the monkeys and it's a problem for the science."

The University of Washington countered in its written responses that Valley fever doesn't represent a threat to the science, arguing that the macaques' complex immune system and history of disease makes them a valuable comparison to humans.

"Part of what makes a (nonhuman primate) a valuable animal model is that it responds similarly to humans. A naïve immune system that has not seen any pathogens does not model the human condition," UW said.

But two scientists told The Republic that exposure to diseases such as Valley fever greatly complicates drawing conclusions from scientific research.

Thomas Hartung, the director of the Center for Alternatives to Animal Testing at Johns Hopkins University, said the disease histories of nonhuman primates makes them more difficult to conduct experiments on in comparison with mice.

With mice, researchers can standardize their breeding and keep them in tiny cages to make sure they don't come into contact with disease. Not so with animals like monkeys because they breed slowly and have disease histories.

"These nonhuman primates are much more diverse, and diversity is an enemy of results, of clear-cut results, because then you need many more animals to compensate for the diversity to get a good result," Hartung said. "This is something you cannot afford with these precious animals. They are expensive. You don't have so many."

Hartung said it is very important to limit the monkeys' exposure to diseases, because factors such as keeping animals in proper conditions and providing proper nutrition can affect results.



Thomas Hartung, director of Center for Alternatives to Animal Testing at Johns Hopkins University
JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH

“Everything that is impacting on the biology and is producing medical problems on their own, you want to avoid them,” Hartung said. “Whenever there is a variable that you don’t have under control, it makes it less likely that you get the right result, or that you get a result at all.”

Monkeys are not very good at completely eradicating the infection caused by Valley fever, said Shubitz, the veterinarian and research scientist at the Valley Fever Center for Excellence at the University of Arizona.

Although Valley fever may seem like it is gone, she said, in actuality, the immune system has built a wall around it in the lungs and keeps the infection in check.

But if the immune system is severely suppressed, Shubitz said, Valley fever grows again and can spread throughout the body quickly and become fatal.

Shubitz said that it is widely known that Valley fever has severe effects on nonhuman primates, especially those from the Old World — Africa and Asia — where the pigtailed macaques are native.

UW touts progress

The University of Washington has been aggressive in treating Valley fever with a fungicide in the hopes of driving deaths down and allowing the animals to recover.

In grant applications, the university said it “committed significant resources into improving the infrastructure” at the Arizona breeding center “by installing HEPA filters and moving toward complete indoor housing to protect these exquisitely sensitive animals from Valley fever.”

Its 2020 grant application said that the group consulted with the University of Arizona’s Valley Fever Center for Excellence and management practices were altered to decrease risk of infection. That included wetting down outside housing, limiting access to outdoor housing during high winds and routine screening for the infection.

“Losses from Valley fever have decreased from a high of 18 in 2014 ... to 1 in 2018,” the grant application said.

“Currently 13% of the animals at (Arizona Breeding Center) are receiving” antifungal treatment, the application said. Nearly 8% were positive for Valley fever and 5% appeared to be cured but were continuing treatment.

As of September, 11% of the monkeys are positive in Arizona, the UW said.

The University of Washington said in its 2016 grant application that Valley fever is endemic in Arizona and “unfortunately in (pigtailed macaques) the incidence of infection is higher and incidence of clinical disease is also higher than we had anticipated based on the incidence of disease in humans, dogs and horses.”

What is especially frustrating to some critics is that planners at UW should have known that Valley fever would be devastating to macaques.

Valley fever was a problem for the chimpanzee sanctuary that was located in the same place. Scientific studies were done on the impact of Valley fever on chimpanzees and that could have been examined and read by the University of Washington before it signed the lease to rent the site.

“It’s not just macaques. I mean, that was a chimpanzee sanctuary before,” Shubitiz said. “There are actually published reports and literature of treatment of some of the chimpanzees at that facility ... with experimental antifungal drugs trying to save them from disseminated Valley fever.”



WOCHIT

The University of Washington said multiple times that its current leadership team was not involved in the decision to locate the macaques at the site on the Salt River Reservation.

“The people who made the decision are no longer with the center and we do not know their thought process or what prior knowledge they had,” UW said in a statement.

But it’s not just Valley fever that the University of Washington failed to anticipate at the site north of Mesa. The Washington National Primate Research Center also signed a long-term lease not realizing that the surrounding area had been fouled by a defense contractor, which polluted the soil with lead and the groundwater with perchlorate, a contaminant leached from rocket fuel.

Republic reporter Alison Steinbach contributed to this article.



Nammo Talley leaked perchlorate into the groundwater over decades of manufacturing shoulder fired rockets. Neighboring monkeys now drink that water.

Rob O'Dell, Arizona Republic

Published 3:49 pm UTC Oct. 5, 2021 **Updated 3:18 pm UTC Oct. 5, 2021**

Aweek after the University of Washington signed a letter of intent to lease the former Mesa-area monkey farm from the Salt River Pima-Maricopa Indian Community in May 2011, a defense contractor next door filed a lawsuit against its own insurance companies.

That contractor, Nammo Talley, had polluted the soil and water on the land just south and east of the monkey sanctuary over decades of manufacturing rocket systems. It wanted the insurers to help pay for the cleanup.

The lawsuit explained that part of Nammo's business involved replacing rocket propellant in aged and yet to be deployed missiles and rocket motors. It used water to bore out the rocket fuel, then screened and recovered the solid materials and [discharged the leftover liquids](#) into unlined evaporation ponds.

Chemicals from those ponds gradually leached into the groundwater, causing an underground plume that has been moving west into the Indian community toward the primate center. Because of the center's remote location, the only water source for UW's monkey colony is groundwater from two wells.

<https://www.azcentral.com/in-depth/news/local/arizona-investigations/2021/10/05/primate-center-monkey-deaths-transport-negligence/8373024002/>

From 1966 to 1986, Nammo Talley also [burned explosive waste materials](#) at a thermal treatment center. The materials were spread thinly and burned on bare soil, contaminating the land across the Salt River canal from the monkey farm with lead, perchlorate and other chemical additives.

Four months after Nammo filed its lawsuit, the state of Washington deputized Arizona law firm Fennemore Craig to serve as an acting attorney general to negotiate a lease between UW and the Indian tribe. The lease, which the tribe signed in early 2012, made it clear that UW was solely responsible for the two wells. It didn't mention the environmental issues.

"If you are going to be breeding monkeys for use in biomedical research, the last place you want to be breeding them is where they are exposed to lead and other toxins," said Lisa Jones-Engel, who served as a senior research scientist at the Washington National Primate Research Center for 14 years. "They are at the most vulnerable stage as a developing fetus and an infant."

In 2019, Jones-Engel resigned her position as a professor at UW in protest because she believed there was a lack of oversight of UW's biomedical research program, and infectious diseases were compromising the science. She joined People for the Ethical Treatment of Animals as a senior scientific adviser for primate experimentation.



Lisa Jones-Engel served as a senior research scientist at the primate center for 14 years.
LYNN JOHNSON

Jones-Engel said there was a lack of due diligence on the part of UW and the Washington state attorney general prior to signing the lease to the old monkey farm. Nammo Talley's issues were well known, she said, especially given the company's lawsuit against its insurers that was filed almost a year before the lease was formally signed.

"Somebody somewhere wasn't doing their job," she said.

Perchlorate in the water is just one of the many problems facing the University of Washington at its pigtailed macaque breeding facility near Mesa and its primate research center in Seattle, The Arizona Republic has found. Monkeys have been getting sick and dying at alarming rates from Valley fever, a flu-like illness caused by fungus from the soil in the desert around Phoenix. The university has also been plagued by financial and managerial problems that have led to a high turnover of staff and the departure of key scientists.

The University of Washington says it is getting many of these problems under control and its program is stabilizing. Its problems with perchlorate, it maintains, have been overblown.

A statement from the Washington National Primate Research Center said the macaques have never been exposed to hazardous levels of the chemical and the water at the facility is safe to drink. UW would only answer questions in writing.

The primate center said there are no problems with lead contamination either.

"Animals are not housed on the soil so there has never been any need to measure lead in the soil," UW spokeswoman Tina Mankowski said in a written response to questions from The Arizona Republic.



Defense contractor Nammo Talley has polluted the soil and water on the land just south and east of the pigtailed macaque breeding facility near Mesa after decades of manufacturing shoulder-fired rocket systems. Monkeys at the facility are now drinking water contaminated with perchlorate.

NAMMO TALLEY

Carole Thompson, communications manager for Nammo Defense Systems, said in a statement that "lead is not a contaminant of concern." It said that lead in the soil has not moved toward the Indian reservation.

But that's not what documents show. The agreement Nammo signed with the Environmental Protection Agency to clean up the area says Nammo "conducted interim measures to address lead contamination in soils on-site and on SRPMIC (Salt River Pima-Maricopa

Indian Community) land.” In addition, a report from a Nammo consultant said metals in the soil around the thermal treatment unit where hazardous materials were burned had been transferred onto Indian community land by stormwater runoff.

It is unclear if the lead has traveled across the Salt River’s South Canal to the primate center.

The University of Washington said in a statement that current leadership at the primate center and the university was not directly involved in the negotiations of the lease with the tribe.

“Our understanding is that the UW was not aware of the pollutants on the Nammo Talley property when we signed our lease in 2012,” UW said. “The earliest information we have on the subject is from 2014.”

But UW insisted that the facility is safe.

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Somebody somewhere wasn’t doing their job.

Lisa Jones-Engel, former senior research scientist at the Washington National Primate Research Center

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“We want to make it clear that even though we don’t have all the background knowledge on the acquisition of the facility in Mesa, Arizona we have full confidence in the quality of the animal care and the utility of the animal model that is produced at the facility,” the UW statement said.

Still, environmental problems around the breeding facility have persisted since the 1990s, when the Arizona Department of Environmental Quality sued Nammo Talley for polluting the soil and water just east of the 21-acre pigtail macaque breeding facility. The defense contractor settled the suit by agreeing to remediate the contamination and continually monitor the soil and surrounding groundwater wells and to make sure the pollution wasn’t affecting its neighbors.

The fight over the contamination remains ongoing. Nammo Talley — now known as Nammo Defense Systems — signed a consent order as recently as February with the Environmental Protection Agency to clean up the contamination of the groundwater and soil.

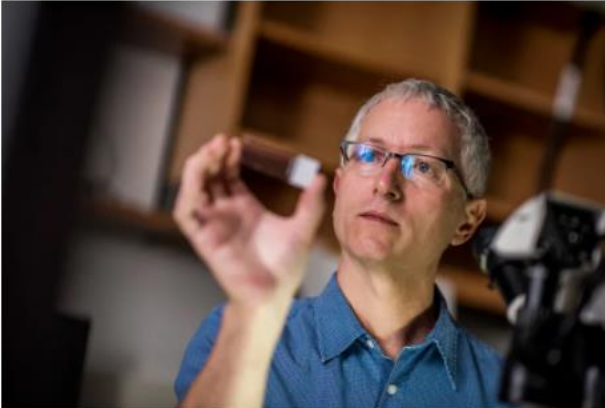
The Arizona Department of Environmental Quality asked for the EPA’s help because it didn’t have regulatory and enforcement authority on tribal land, said ADEQ spokeswoman Caroline Oppleman.

Damaging to fetuses and babies

<https://www.azcentral.com/in-depth/news/local/arizona-investigations/2021/10/05/primate-center-monkey-deaths-transport-negligence/8373024002/>

Perchlorate, which isn't regulated by the EPA, primarily affects humans and nonhuman primates by disrupting the thyroid's ability to produce hormones needed for normal growth and development, the EPA says.

It's toxic because it limits the thyroid's ability to take in iodide, said Frank von Hippel, a perchlorate expert and professor of environmental health sciences at the University of Arizona.



Frank von Hippel, professor of environmental health sciences at the University of Arizona.
NORTHERN ARIZONA UNIVERSITY

"Instead of bringing iodine into the follicles, they're capturing perchlorate. And that makes it so that we're not able to make enough thyroid hormone," he said.

Perchlorate disrupts hormones in pregnant and nursing females, but it is most damaging to fetuses and babies.

"It's especially worrying for the developing fetus and young child because thyroid hormones support brain development," von Hippel said. "If the mother is exposed to a lot of perchlorate during pregnancy, then the baby can have improper brain development."

By affecting pregnant and nursing mothers along with fetuses and newborns, perchlorate has the potential to harm the macaques most crucial to the breeding colony.

It is unclear if perchlorate is having any effect on the macaques at the primate center. But studies have shown that exposure to perchlorate can cause hair loss in mice. And macaques at the center are having problems with hair loss.

Washington National Primate Research Center researchers [studied hair loss](#) in its Arizona macaques in 2019. They wanted to determine whether the hair loss could be linked to a reduction in outdoor activity, pregnancy or because of the antifungal agent given to the macaques to combat Valley fever.

Results were mixed and linked some hair loss to the antifungal agent, age and the amount of space the monkeys had to roam. But researchers did not test to see whether the hair loss could have been caused by perchlorate in the water.

"It is well documented that alopecia is common among non-human primates," a statement from the University of Washington said. "Since they have not been exposed to perchlorates, that is not a factor with regards to the alopecia."

“

Animals are not housed on the soil so there has never been any need to measure lead in the soil.

Tina Mankowski, University of Washington spokeswoman, in a written statement

The groundwater from the facility's two wells is the only water source for the macaques. It is also used to hose down monkey runs and cages and to wet dirt around the facility to prevent the spread of Valley fever.

Documents said primate center employees don't drink the water there, but UW said in its written answers that

“our employees are allowed to drink the water at the facility. Some people prefer bottled water.”

Although the two wells are monitored by Nammo Defense Systems, ADEQ and the EPA, only the second well is used for the primates' water supply.

The water tank from that well tested positive for perchlorate in August 2014, registering [2.7 parts per billion](#). That amount exceeded Massachusetts' 2 ppb perchlorate drinking water standard, which is the most stringent in the nation. It is above California's and New Mexico's health-based guidelines of 1 part per billion.

There is no Arizona drinking water standard for perchlorate.

A consultant for Nammo developed a standard for how much perchlorate the pigtailed macaques could tolerate drinking from the primate facility's main well, putting it at [6.4 parts per billion](#) because of the macaques' lower body weight and higher consumption of water.



A pigtailed macaque breeding facility at the Salt River Pima-Maricopa Indian Community near Mesa.
ARIZONA REPUBLIC

Perchlorate scare in 2016

Nammo and ADEQ agreed upon a [contingency plan](#) where a treatment system would be procured and installed within 120 days if a test came back higher than 3.2 parts per billion. If a test came back at more than 5.8 ppb, potable water would be trucked to the facility until a treatment system could be set up.

In February 2016, a representative from Nammo sent an email with tests that showed perchlorate at 9.5 parts per billion and requested an urgent meeting. Tests also showed other chemicals in the facility's other unused well. There was a conference call between all of the parties, according to an email from ADEQ's Richard Olm.

"The ion exchange [system is being procured](#) and will be installed within 120 days," Olm's email said. "In the interim, potable water from a (Nammo) production well will be trucked to the primate facility at the volume required, which may be as much as 4,000 (gallons per day)."

Anthony and I participated in the conference call this afternoon. Participants included Brad, Christiana, Lily, Chris, Lauren, Phil, and representatives from the Primate Facility and University of Washington. NT was very accommodating and agreed to implement the contingency plan. The ion exchange treatment system is being procured and will be installed within 120 days. In the interim, potable water from a NT production well will be trucked to the Primate facility at the volume required which may be as much as 4000 gpd. Delivery of water can begin immediately. Also, NT will begin developing a contingency plan to treat VOCs and 1, 4- dioxane. The original CP does not provide much detail so we will have to work on this. Lastly, PW-1 and PW-2 were resampled yesterday and submitted to two separate labs for analysis. The data should be available by Thursday and early next week. Perhaps, the VOC and 1, 4 dioxane CP may be dependent upon the results but I think the ion exchange will move forward regardless of the additional sam

Please let me know if any questions.

Thanks

Documents indicate that water would be trucked to the Arizona primate facility.
EMAIL FROM ADEQ'S RICHARD OLM OBTAINED VIA

Olm said Nammo Defense Systems also was developing a contingency plan for the chemicals found in the facility's other well. He said the wells were retested and new results would be available shortly.

Developing a plan to deal with chemicals in the other well might depend on the new tests, but Olm thought the treatment system for perchlorate "will move forward regardless of the additional sampling results."

But nothing ever happened.

ADEQ and EPA officials said new samples came back showing no trace of perchlorate and concluded the previous test was either an error in analysis or that the sample was somehow contaminated.



Northern pigtailed macaque in Thailand.
GETTY IMAGES/ISTOCKPHOTO

Since then, the wells have periodically tested positive for perchlorate at levels below those that would trigger the treatment system. The wells are tested three to four times a year.

That's not nearly enough, von Hippel said. The levels of perchlorate that the tests have found are reassuring because they are below most of the most stringent levels of perchlorate for humans. But the amount that the water is being tested is not reassuring.

Because perchlorate is so water soluble, it can move around quickly in the water, and the amounts can ebb and flow depending on the weather, especially how much it rains.

"Think about how precipitation works here in Arizona, where you have long periods with no precipitation and then you get a huge amount all at once," von Hippel said. "That can change your groundwater concentrations dramatically."

He said the water should be tested far more often than four times a year, adding that it should be tested before, during and after large amounts of rainfall.

The National Institutes of Health didn't directly answer whether the agency, which funds the bulk of monkey research, had any knowledge of the perchlorate in the water or whether it was concerned about it.

"The NIH takes very seriously the humane care and use of animals used in NIH-funded research," the NIH Office of Extramural Research said in written responses to The Republic's questions. "All animals used in NIH-funded research are protected by laws, regulations, and policies to ensure the greatest commitment to their welfare."

The agency said it would not discuss any self-reported cases of noncompliance with its policy on the humane care and use of laboratory animals.

An ion exchange treatment system similar to the one proposed by ADEQ and the EPA would cost about \$100,000 to install and with minimal costs to operate, said Bryan Woodruff, business development executive with Samco Technologies.

Thompson, from Nammo, said "it's difficult to project and estimate or cost" for the treatment system because the company was unsure exactly what type of system would be needed to treat the water.

With the University of Washington's ongoing financial difficulties, the \$100,000 sticker price is not an expense that can be made easily,

Still, Michael Budkie, co-founder of Stop Animal Exploitation Now, said the decision to not install a treatment system is consistent with the ethos in animal research, which is to try and cut costs as much as possible.

"Their guiding principle is to do everything as cheaply as they can," he said. "It is precisely something they wouldn't want to do."

The University of Washington said Nammo Defense Systems would have to pay for the treatment system, but "to date there has not been a need to install the system because there has never been a perchlorate level that would trigger such an installation."

Thompson, from Nammo, agreed the system was not needed.

Budkie said he believes not treating the perchlorate in the water is a violation of the Animal Welfare Act because animals must be provided with proper food and water.

The University of Washington's failure to recognize it had perchlorate in its well water or that Valley fever might impact its colony of pigtailed macaques before signing a lease to occupy the old monkey farm near Mesa are just two examples of bungled managerial decision making over the past decade, but they were by no means the only ones.

In fact, the university and the primate center that's run from its campus have deep financial, regulatory, public relations and personnel-related problems that won't go away overnight.

Republic reporter Alison Steinbach contributed to this article.

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SUBSCRIBER EXCLUSIVE

INVESTIGATIONS

On top of monkey farm woes, primate center faces financial problems and a sex scandal

Washington's primate center is dealing with heavy debt, unfavorable lease agreements, rising costs and it recently laid off staff.

Rob O'Dell, Arizona Republic

Published 3:57 pm UTC Oct. 5, 2021 | Updated 3:06 pm UTC Oct. 5, 2021

Washington's primate center is dealing with heavy debt, unfavorable lease agreements, rising costs and it recently laid off staff.

Rob O'Dell, Arizona Republic

Published 3:57 pm UTC Oct. 5, 2021 Updated 3:06 pm UTC Oct. 5, 2021

The 2018 review of the Washington National Primate Research Center by the National Scientific Advisory Board didn't pull any punches.

It called out the center's ineffective leadership, its crumbling finances, high turnover and low staff morale. While it praised the science coming from the primate center, which breeds monkeys in Arizona to conduct medical tests on them in Seattle, the report said the financial issues were formidable and that some ["border on insurmountable."](#)

<https://www.azcentral.com/in-depth/news/local/arizona-investigations/2021/10/05/primate-center-monkey-deaths-transport-negligence/8373024002/>

that these decisions are being made hastily, or perhaps even more so, quite damaging to the overall morale of the WaNPRC.

Financial challenges

From all appearances, the financial issues facing the WaNPRC are formidable/critical, and some may border on insurmountable. Unfavorable lease arrangements, considerable 'legacy' deficits that must be serviced, diminished levels of funding for the P51 base grant (not just 'flat' budgets, but additional cumulative annual cuts to funding as well), consternation related to the establishment of per diem rates, and inadequate support from UW (including an unfunded mandate for salary increases) are all major factors that contribute to the financial issues confronting the WaNPRC. It seems as though there is little that the Primate Center Director can do to address the overall amount

A National Scientific Advisory Board report highlight issues the Washington National Primate Research Center faced.
NATIONAL SCIENTIFIC ADVISORY BOARD REPORT

The National Scientific Advisory Board said there was little the center could do to address these issues. That's because the grants that fund most of its research are determined by the National Institutes of Health and they have remained flat or declined in recent years. At the same time, costs are rising and the primate center is locked into "unfavorable lease agreements."

The report criticized the University of Washington's lack of desire to invest in the primate center's monkey research, saying it made it seem "as though UW is sacrificing science."

A major problem is that funds that could cover indirect costs of research — maintenance, cleaning services and keeping the lights on — don't get paid directly to the primate center but go to the departments of the faculty researchers instead.

"Without the indirect cost return, the financial health of a primate center is impossible to maintain," the report said. "It remains a pernicious inequity that hurts everyone."

The National Scientific Advisory Board went on to berate the primate center about the deterioration of its HIV/AIDS research division and about inadequate staffing at the primate center in Seattle and at the Arizona breeding facility. It also mentioned staff changes caused by a sexual harassment scandal that rocked the reputation of the university and its primate research programs.

These problems come at a time when the primate center has been battling an outbreak of Valley fever at its Arizona breeding facility, raising questions about whether infected macaques should be used in research studies.

The monkeys at the facility are also drinking water contaminated with perchlorate leached from rocket fuel. The University of Washington has repeatedly broken laws and rules regarding the interstate transport of monkeys, and staff carelessness or a lack of oversight has resulted in the painful and unnecessary deaths of at least five monkeys since 2017, documents from federal regulators show.



Drone footage posted to YouTube shows a secluded compound north of Mesa where pigtailed macaques are bred for research.
VIA YOUTUBE

In written answers to questions from The Arizona Republic, the University of Washington said some of these problems — such as the perchlorate in the water — have been overblown — while other problems like Valley fever, the university’s finances and staff turnover have been gradually improving.

With regard to the death of the monkeys, the university said the impact on scientists and staff “cannot be understated.”

“When an adverse event occurs everyone is impacted,” the university said.

Low morale, sexual harassment

There’s no question the 2018 review from the National Scientific Advisory Board was a low point for the university.

The primate center’s division of AIDS-related diseases was called out for having numerous problems. Despite the outstanding productivity of the group’s scientists, the review said “[significant challenges](#), including procedure costs, pricing structure, animal shortages, and inadequate and center-provided research remain.”



A monkey in its cage at the Washington National Primate Research Center in Seattle.

MICHAEL BUDKIE/STOP ANIMAL EXPLOITATION NOW

All of this had been made worse by recent departures that affected the scientific expertise and direction of the HIV division.

The report said that losses of key veterinary and pathology support prevented the timely completion of funded work, resulting in some studies being relocated. Fees have gone up, undercutting competitiveness, while grant support has decreased, which has hindered development of projects, the report said.

“These recurrent and unresolved issues/problems affect the morale of AIDS division scientists,” the report said.

This matters because between 35% and 50% of the pigtailed macaques bred by the Washington National Primate Center have been used in HIV/AIDS studies.

The report said there was a significant concern in the turnover of the associate director position in the primate research department, with [four different associate directors](#) in eight years. This negatively impacts the building of a strong program, has adverse effects on morale and risks developing a reputation as an unstable animal care program, the report said.

Getting more veterinary staff was a high priority.

“It was also very evident that [additional veterinary staff](#) is needed at the Seattle campus,” the report continued. “It was unclear if there are adequate staffing levels at the Arizona facility.”

The report called out a lack of staffing, massive turnover and low morale in other departments as well.

“Positions have been [lost due to attrition](#), a situation that is especially problematic for the Arizona facility,” the report said, especially with impending staff retirements.

it has unstable Animal Care program, which is not indicative of the actual situation. It was difficult to identify the specific factors that contribute to this turnover, but it is essential that there is a focus on team building in DPR, and the veterinary staff specifically.

It was also evident that additional veterinary staff is needed at the Seattle campus. It was unclear if there are adequate staffing levels at the Arizona facility. The WaNPRC is experiencing financial constraints like many NPRCs, but veterinary staffing is certainly a high priority issue.

The recharging issue for the WaNPRC is its financial situation. Primate Centers are certainly recharging and the Center is taking steps to ensure that the recharge rates are accurate. What was not clear was the amount of indirect cost return.

An excerpt from the 2018 review of the Washington National Primate Research Center by the National Scientific Advisory Board.

NATIONAL SCIENTIFIC ADVISORY BOARD REPORT

A review of the systems biology division pointed to the loss of a key top scientist and newly appointed leadership after the previous division head was fired for sexually harassing two of his female employees.

Michael Katze, a star researcher and division chief within the primate center who brought in millions of dollars for the university, supervised more than 25 employees.

Two University of Washington investigations said one of those employees had a [“quid-pro-quo”](#) sexual relationship with Katze where he paid her thousands of dollars more than she could get elsewhere and gave her cash and gifts such as shoes or vacations in exchange for oral sex.

Katze also was found to have [sexually harassed](#) another employee by “touching her buttocks and breasts” and exposing his penis on “four or five occasions.” He touched her body and ripped her pants when drunk and tried to kiss her on another occasion, the report found.

Katze, who became the subject of a [BuzzFeed expose](#), was found to have been [watching pornography](#) on his work computer despite previous warnings. Employees described his behavior as “cruel, crude and characterized by frequent profanity and occasional screaming.”

The issues identified in the NSAB report led the National Institutes of Health to restrict UW from spending some grant funds from its largest grant from NIH.

“No funds may be expended for this grant until submission of the detailed plan and response to the concerns expressed in the National Scientific Advisory Board (NSAB) report,” the notice from NIH said.

Lisa Jones-Engel, a former senior research scientist at the Washington National Primate Research Center and a former professor at the University of Washington who left in protest in 2019, said it was the severity of the 2018 report that first kicked off her concerns about the administration’s lack of oversight.

“It was that 2018 report that started everything,” she said. “This was what was surprising at how sharp this review was. It was basically saying ... ‘you are a mess.’”

Jones-Engel also felt that infectious diseases were compromising the science from the primate center. She now works for People for the Ethical Treatment of Animals.



Lisa Jones-Engel served as a senior research scientist at the primate center and as a professor at the University of Washington for 14 years. She resigned her position in protest in 2019.

LYNN JOHNSON

University of Washington spokeswoman Tina Mankowski pointed to more recent National Scientific Advisory Board reports that said the appointment of interim director Sally Thompson-Iritani to oversee the primate center had stabilized the operation and the future was brighter with the hiring of a new permanent director.

Earlier this month, the Washington National Primate Research Center tapped UCLA psychiatry, biobehavioral sciences and neurobiology professor Michele A. Basso to be its new director.

Basso is already discussing plans for recruitment of new investigators and bringing in new core staff, particularly in the field of HIV and at the intersection of neuroscience and infectious disease, a statement from UW said. But ongoing financial issues could hamper those efforts.

But problems from Basso's past accompany her. Her privileges to conduct animal research and her research protocols were temporarily suspended by the University of Wisconsin's all campus animal care and use committee in 2009 because of her treatment of monkeys.

The chief campus veterinarian at the time wrote that Basso, whose research involved inserting electrodes into monkey's brains to measure their activity, had significant difficulties with the "cranial explant model — many more than other investigators using the same model in the same animal care unit with the same veterinary staff."

The letter said Basso had a lengthy [history of noncooperation](#) with veterinary staff, didn't permit necropsies on some animals and had been inserting unsterilized materials into brain tissue.

Basso blamed much of the problems on the veterinary staff and filed a grievance with the university's faculty committee, which ultimately found that the university had violated Basso's [right to due process](#) and the animal care committee overstepped its authority in canceling her research. Fellow professors rallied around her, saying she had been treated unfairly.



Pig-tailed macaque in Thailand.
GETTY IMAGES/ISTOCKPHOTO

Basso said in a statement to the Republic that she was exonerated of all charges of wrongdoing in Wisconsin, adding: "I consider it a privilege to work with these animals and one that I do not take lightly."

She said she is eager to work with the University of Washington to ensure the financial stability of the primate center.

"I am looking forward to building education and community outreach programs that provide members of the public with knowledge of our contributions and also about the critical role that animals and particularly non-human primates, play in biomedical advances," Basso said.

An Arizona solution to its financial problems

A 2016 review of the Washington National Primate Research Center laid out the center's problem clearly.

<https://www.azcentral.com/in-depth/news/local/arizona-investigations/2021/10/05/primate-center-monkey-deaths-transport-negligence/8373024002/>

The cost to breed the monkeys at each of its more than four breeding colonies at the time was \$15,216 apiece, but the price at which UW sold the monkeys was \$13,254.

“The rate was set below cost so the more successful they are in providing animals, the more revenue the Center will lose,” the document from NIH said.

Enter the Arizona breeding center. The site on the Salt River Pima-Maricopa Indian Community north of Mesa was supposed to remedy some of the University of Washington’s financial issues, allowing the primate center to lower costs and increase production.

In 2018, the primate center launched a \$2.4 million expansion that would allow it to transfer its macaques from colonies in Louisiana and Texas to Arizona and house some of the animals inside to protect them from Valley fever.

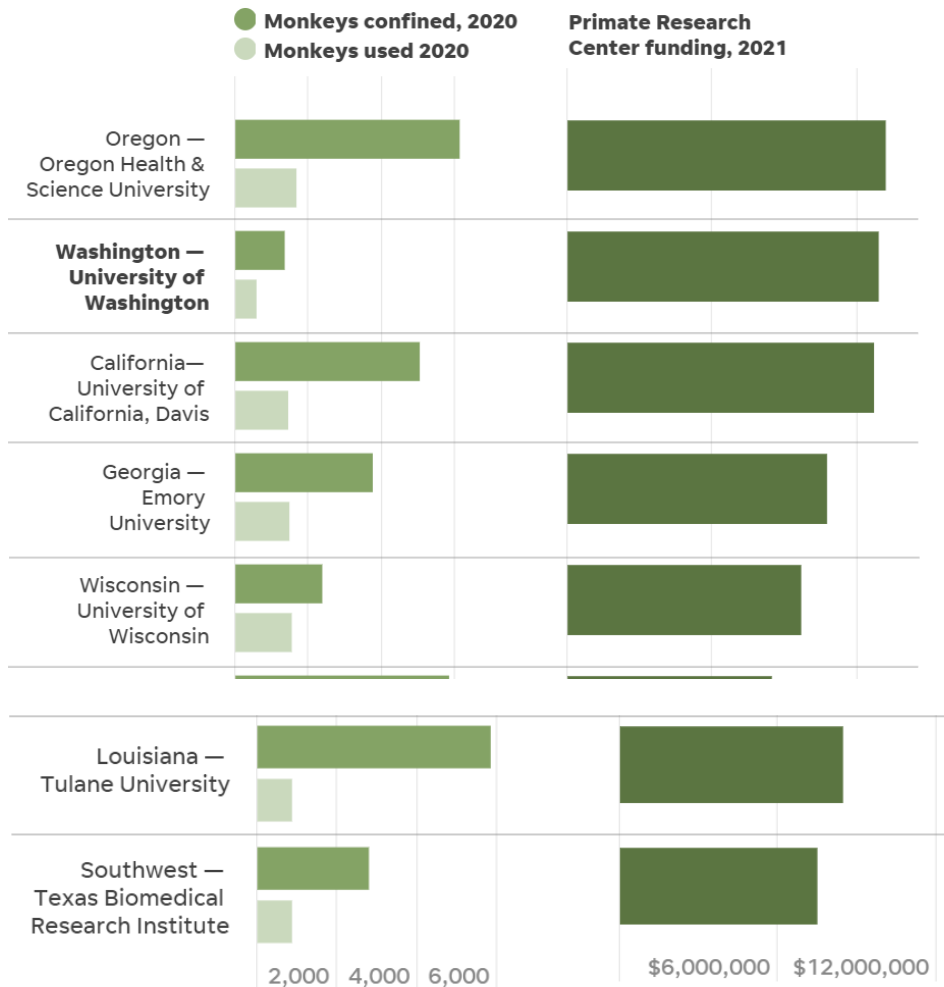
The University of Washington said the move was done to find a place where the primate center could have a location that was solely managed by primate center personnel, UW said in a statement, adding it was successfully completed in 2020.

The Washington National Primate Research Center is one of seven national primate research centers across the country. The centers were set up in the 1960s to provide a sustainable supply of monkeys to support health related research.

But UW houses by far the fewest number of the monkeys of the seven primate centers, according to USDA annual research facility reports.

Big money - small production

The Washington National Primate Research Center produces by far the fewest monkeys but receives the second highest amount of funding among the seven primate research centers in the U.S.



SOURCE: NIH and USDA
Jennifer Borresen/USA TODAY

The lack of scale is one of the reasons the university sought to consolidate its pigtailed macaques at one location. The university chose the Mesa-area site over another former chimpanzee colony at a military base in New Mexico. UW rents the facility for about \$60,000 a month, far less than some of its leases in Seattle that cost \$3 million annually.

Despite having the smallest number of monkeys and one of the smallest staffs, however, the Washington National Primate Research Center receives the second most money annually from all of the National Primate Research Centers.

Its \$12.9 million annual grant from the National Institutes of Health allows it to care for about 1,000 monkeys. By contrast, the University of Oregon has more than 6,000 monkeys, but receives \$13.1 million a year from NIH, according to numbers from the NIH and USDA.

<https://www.azcentral.com/in-depth/news/local/arizona-investigations/2021/10/05/primate-center-monkey-deaths-transport-negligence/8373024002/>

In all, the Washington National Primate Research Center's annual budget is \$23 million, UW said in a statement.

Since 2012, the University of Washington has received more than \$136 million from its main NIH grant for the Washington National Primate Research Center. On top of that, the primate center will make another nearly \$14 million in program income from the sale or use of the monkeys by researchers, along with other activities, between 2016 and 2024, according to its own estimates from grant applications.

In addition, since coming to the Indian community in 2011, the university has received another \$21 million in funding from NIH to breed the monkeys at the Arizona facility.

But grants and program income have not been enough to ward off financial problems, cuts to primate center staff and low morale for its employees.

It also hasn't prevented the primate center from breaking state and federal laws concerning infectious diseases or from endangering the lives of its monkeys through careless treatment and neglect.

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Washington primate center failed to notify authorities on multiple occasions that monkeys had Valley fever when transporting them across state lines.

Rob O'Dell, Arizona Republic

Washington primate center failed to notify authorities on multiple occasions that monkeys had Valley fever when transporting them across state lines.

Rob O'Dell, Arizona Republic

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Many of the world's most devastating viruses have jumped from animals to humans.

COVID-19, the pandemic currently ravaging the planet, originated in bats before jumping to people.

Another coronavirus, severe acute respiratory syndrome (SARS), also jumped from bats to humans in 2002, causing a large outbreak and nearly 800 deaths. Middle East respiratory syndrome (MERS) jumped from camels in the Arabian Peninsula and traveled worldwide.

One of the world's most terrifying diseases, Ebola, jumps from bats or nonhuman primates to infect humans. And a virus that has a bigger impact than almost any other — HIV/AIDS — has killed more than 36 million people after humans caught the disease from the nonhuman primates they were hunting for meat.

That's why states have reportable disease requirements for exotic animals brought into their jurisdictions. State officials want to know about the diseases carried by exotic animals, lest the diseases they carry break out and infect other animals or humans.



A monkey in its cage at the Washington National Primate Research Center in Seattle.

MICHAEL BUDKIE/STOP
ANIMAL EXPLOITATION
NOW

But the University of Washington has not been following those laws and rules in Washington state for much of the past seven years. Since 2016, it has imported 283 monkeys into Washington in six shipments, violating state laws and regulations.

UW failed to notify the Washington Department of Agriculture that any of the monkeys were infected with Valley fever, which is on the state's [list of reportable diseases](#). Animals with it must be reported to the Washington state veterinarian's office.

In five of the six shipments, UW failed to provide certificates of veterinary inspection for the monkeys, which is a requirement for exotic animals. In all six shipments, it failed to obtain entry permits for the monkeys, another requirement.

After a complaint by People for the Ethical Treatment of Animals, the state veterinarian's office found UW's primate center "failed to report this disease to the State Veterinarians office as required" and issued a notice of correction to UW that said further violations would bring a \$1,000 fine.

"What happened was that they changed veterinarians at their Arizona facility," said then-Washington state veterinarian Brian Joseph. "Their old veterinarian failed to fully train and inform their replacement. ... They were ignorant of our regulations. The new veterinarian was ignorant. They were ignorant of the reporting requirements."

Joseph points out in an email that a former Washington state assistant veterinarian was on UW's Institutional Animal Care and Use Committee for four years, so the former assistant "at least [should have been fully aware](#) of our requirements."

UW's negligence in failing to adhere to state laws while transporting monkeys across state lines comes at a time when its primate program has been coping with a multipronged crisis.



Brian Joseph,
former
Washington
state
veterinarian.

Valley fever, a flu-like illness caused by fungus from soil, has run rampant through the university's breeding facility in Arizona, causing an upsurge in disease and death. In turn, the monkeys at the facility are drinking water tainted with perchlorate, a contaminant leached from rocket fuel.

The university also has been trying to cope with heavy debt, rising costs, high turnover, the departure of key scientists, low morale and a sexual harassment scandal.

What's more, the primate center has been cited for the inhumane and unnecessary deaths of at least five monkeys in its care.

In its response to violating laws regarding transporting monkeys across state lines, UW blamed its previous veterinarian for not conveying information to the new veterinarian that permits were needed. Charlotte Hotchkiss, the acting associate director of primate resources, said they didn't realize that a previous veterinary form was no longer approved as of 2018.

But emails from the Washington state veterinarian show that UW hasn't gotten entry permits since 2014.

UW said it didn't report the Valley fever because it is not contagious between animals or between animals and humans, adding that it didn't realize Valley fever was on the list of diseases reportable to the state.

Joseph said it needs to be reported because Valley fever can be "infectious in the right climate."

"Western Washington does not have the correct climate for the fungus to live in the soil and become contagious," Joseph said, but "part of Washington has a climate where it could be contagious." He pointed to central and southern Washington, noting they are even more susceptible to Valley fever now because of climate change.

A retired veterinarian interviewed by The Arizona Republic noted that Valley fever was never in Washington prior to 10 years ago, but it is now considered endemic in the central and southern portions of the state. It is unclear how Valley fever moved there, but it was found prior to UW signing its lease for the Arizona facility. The retired certified laboratory animal veterinarian spoke to The Republic for its investigation on condition of anonymity because the veterinarian feared that being identified could cause former colleagues to come under scrutiny.



Lisa Jones-Engel, former senior research scientist.

Lisa Jones-Engel, a former senior research scientist at the Washington National Primate Research Center and a former professor at the University of Washington who left in protest in 2019, said in order to import a sick animal with a reportable condition, you have to notify the state veterinarian to get permission, which may not happen “because they simply don’t want to have sick monkeys coming in the state.”

Jones-Engel, who now works at People for the Ethical Treatment of Animals, said it’s fairly astonishing that a national primate research center doesn’t know the laws for importing exotic animals into its home state.

“I’m trying to wrap my brain around how a national research center would have failed to follow these most basic state laws, which are designed to protect public health,” she said. “That’s why we have those laws.”

Jones-Engel said PETA has found little evidence the primate center has been getting the proper permits and submitting records of veterinary inspections in other states, including Louisiana, Maryland, Georgia and New York.

In Arizona, the primate center is not subject to import and permit rules because of its location on the Salt River Pima-Maricopa Indian Reservation, said Tyler VanVleet, a law enforcement program manager for the Arizona Fish and Game Department.

'Systematic and egregious deficiencies'

Although Valley fever is not transmissible from animals to humans, it can weaken a monkey’s immune system and make it more vulnerable to diseases that are transmissible between animals that could also pass onto humans, Jones-Engel said.

If UW did not disclose the monkeys were positive for Valley fever, Jones-Engel questioned whether UW didn’t notify the state of other diseases such as chagas, which 8% of the macaques in Arizona and 4% of the macaques in Washington have antibodies for, according to the UW’s written statements. Chagas is an infectious disease caused by a parasite that can lead to long-term heart and gastrointestinal issues and can be fatal.



Aerial view of the University of Washington campus in Seattle.
LIBRARY OF CONGRESS

PETA asked the Washington state Department of Health to investigate whether infectious diseases other than Valley fever have not been reported to Washington state, but the Department of Health declined.

In addition to running afoul of state laws, the Washington National Primate Research Center has violated animal welfare rules set by

the National Institute of Health's Office of Laboratory Animal Welfare and the U.S. Department of Agriculture.

Some of the violations are similar to incidents that led Harvard University to close its New England Primate Research Facility in 2015.

Four monkeys died at Harvard's primate facility because of issues with animal care between 2010 and 2012, [according to the Boston Globe](#). After its accreditation was put on probation by the Association for Assessment and Accreditation of Laboratory Animal Care International, and after being fined \$24,000 by the U.S. Department of Agriculture for violations, Harvard announced it would close the national research facility in 2013.

The Washington National Primate Research Center's experience hasn't been that different from Harvard's.

The University of Washington was put on probation by the same accrediting body in 2006 after it found "serious deficiencies," [according to the Seattle Times](#). It also was [fined nearly \\$11,000 by the USDA](#) in 2011 for allowing a monkey to starve to death in 2009.

Since 2017, five monkeys died at the primate center locations in Washington and Arizona because of poor care or improper oversight.

In March 2019, a macaque was scheduled for surgery, but scientists did not have it fast properly overnight due to a miscommunication. Staff delayed the surgery for an hour, but then went ahead. The monkey went into respiratory arrest, throwing up and then [breathing in its vomit](#).

Medical staff stabilized the animal, but it later died. Reports showed the animal inhaling its food was a contributing factor to its death.

At the Arizona facility in November 2018, staff members found a 2-year-old female pigtailed macaque with its [arm caught in the metal mesh](#) of its cage. The animal was sedated and the mesh was cut to free its arm, according to a report made to the Office of Laboratory Animal Welfare.

The animal fractured its arm at the growth plate and couldn't move its fingers on the affected side and was ultimately put down.

In April 2018, a monkey accidentally strangled itself on a [foraging device](#) that had not been properly installed. The pigtailed macaque pulled a chain holding the device into its cage, entangled its jaw and strangled itself, a report from the Office of Laboratory Animal Welfare said. The university said the device had been modified to fit the space and pulled all similar devices out of all cages within an hour and reverted to using different kinds of devices.



A monkey in its cage at the Washington National Primate Research Center in Seattle.

MICHAEL BUDKIE/STOP ANIMAL EXPLOITATION NOW

In January 2017, workers forgot to properly connect a water line to an animal's cage. The 8-year-old macaque was found lethargic and [severely dehydrated](#). It died during treatment. Necropsy results found the cause of death was consistent with a lack of water for 48 to 72 hours.

Just three months later in April 2017, a monkey died while under anesthesia related to an experimental magnetic resonance imaging (MRI) procedure. Staff was found to have inadequate anesthetic monitoring records for the procedure.

There were more deaths too. Three baby macaques were killed when attacked by older macaques in three different incidents in 2014, according to USDA records.

PETA sent a letter in 2019 to the Office of Laboratory Animal Welfare asking the NIH to withdraw its approval for the University of Washington.

“For at least 13 years, systemic and egregious deficiencies have persisted in the care and treatment of animals in UW’s laboratories,” PETA wrote. “Federal authorities have documented habitual neglect of animals, routine lapses in veterinary care, and intolerable suffering of animals in the school’s laboratories.”

The carelessness and neglect didn't stop there.

In November 2017, the Washington National Primate Research Center realized that it had not been giving food to a monkey during weekdays because staffers had failed to remove signs that said the animal was being fed specially by an investigator.

<https://www.azcentral.com/in-depth/news/local/arizona-investigations/2021/10/05/primate-center-monkey-deaths-transport-negligence/8373024002/>



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For three months, it did not receive its regular feedings on weekdays, although UW pointed out it was still fed on the weekends and could have eaten leftover chow from its cage mate as well as biscuits given out during weekdays.

NIH reports said the monkey “was determined to be in good health despite having experienced some weight loss and exhibiting a lean body condition.” The university changed its procedures for more daily checks for the signs on cages and a monthly review of requests to feed monkeys by an investigator.

In another incident in Arizona in July 2020, a juvenile macaque escaped through a feeding device that was unlocked and was injured when another macaque pulled the juvenile's arm through the metal mesh, resulting in the juvenile's arm needing to be amputated.

In April 2020, a monkey was left in a small space called a [trapping run](#) for at least 12 hours without access to food or water, according to reports from the NIH and the USDA.

Primate center personnel noticed the animal was missing and believed it had been moved to another cage. They looked in the trapping run, which is a small area in the back of the facility that is used to house monkeys while cages are being cleaned, but didn't find the animal.

It was found mildly dehydrated in the run the next morning and recovered. The primate center added water bottles to the runs. The USDA issued the primate center a critical violation citation during its inspection in January.

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Any adverse event that occurs at our facility whether in Seattle or Arizona is devastating especially if it results in the death of an animal.

Statement from University of Washington spokeswoman Tina Mankowski

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Jones-Engel said documents from the University of Washington's institutional animal care and use committee show the monkey was in the small trapping run from Saturday morning until Monday morning, so it's possible the monkey was in the run for as much as 48 hours.

"There was no reason to move her into the trapping run on either Saturday or Sunday, and no one admitted to doing so," minutes from UW's institutional animal care and use committee state.

In the same report, the USDA issued another critical violation because a male macaque broke two locks on cages and escaped with its cage mate into a room with other monkeys. Seven macaques ended up with injuries to their hands and some had facial injuries.

The University of Washington appealed the violations in 2020, hoping to get them stricken from its record.

The U.S. Department of Agriculture denied its appeal.

“The fact that these (incidents) took place over an approximately [9-month period](#) is not indicative of a facility that is demonstrating success at preventing critical animal welfare issues,” wrote Robert Gibbens, the USDA’s director of animal welfare operations. “Therefore these citations will remain on the inspection report as written.”

'Throwing them away'

The Washington primate center said in a statement that it is very transparent about the work it does, including when things go wrong. The center said that it reports adverse events to the appropriate regulatory agencies and launches internal investigations.



Michael Budkie, co-founder of Stop Animal Exploitation Now.
COURTESY OF MICHAEL BUDKIE

“The impact of an adverse event such as any of these cannot be understated,” a statement from UW spokeswoman Tina Mankowski said. “Any adverse event that occurs at our facility whether in Seattle or Arizona is devastating especially if it results in the death of an animal.

“The staff at WaNPRC who are responsible for the care of the animals on a daily basis have dedicated their careers to ensuring that animals that are used in scientific research receive optimal care at all times,” the statement said. “This includes the veterinary staff, behavior management staff and the husbandry staff — when an adverse event occurs everyone is impacted.”

Michael Budkie, co-founder of Stop Animal Exploitation Now, filed a complaint in mid-August with the Association for the Assessment and Accreditation of Laboratory Animal Care (AAALAC) — the group that put Harvard’s accreditation on probation. The complaint calls for

<https://www.azcentral.com/in-depth/news/local/arizona-investigations/2021/10/05/primate-center-monkey-deaths-transport-negligence/8373024002/>

an independent investigation into the incidents and the revocation of the University of Washington's accreditation.

"In what laboratory is giving food and/or water optional?" Budkie asks in the complaint. "How is it that (the) UW lab can't keep monkeys alive through surgery? How is it that UW staff seem to not know where the monkeys are?"

Budkie questioned how the university can do science properly if it can't even provide adequate water and food for the animals. The primate center is having these issues even though other primate centers are five or six times larger, he said.

And this is not UW's first round of citations.

UW had to close its regional primate center near Spokane in 1996 and move 1,200 primates to Louisiana, Oregon and Seattle.

Staff changes left only one veterinarian to care for as many as 1,500 primates, according to a [1996 article in the Seattle Times](#). Diarrhea became a persistent problem. Five baboons were ostracized by the main troop in November 1994. "Huddling together away from protective heat lamps, they froze to death," the article said.

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Having a facility in this location is just pointless for them. It's like taking the monkeys and throwing them away.

Michael Budkie, co-founder of Stop Animal Exploitation Now

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In June 1994, at least four primates died of thirst and three more suffered from severe dehydration. William Morton, director of the regional primate center, told the Seattle Times that if UW was unable to sustain confidence that the monkeys were being handled properly, the entire university's animal-research program would "come down."

Budkie said the University of Washington has demonstrated it has a long-term problem about complying with the Animal Welfare Act.

But even putting aside the welfare of the animals, he said the animals' exposure to Valley fever and perchlorate is negatively affecting the research they are used for because the animals' health and immune systems are compromised before the research even begins.

Budkie said there is no way that researchers could use pigtailed macaques from UW's Mesa-area facility and "not have the research somewhat corrupted by the condition of the animals."

"It's really making the monkeys into extremely poor research subjects," Budkie said. "Having a facility in this location is just pointless for them. It's like taking the monkeys and throwing them away."

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Republic reporter Alison Steinbach contributed to this article.

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