

DWR Commitments to Managing Sarcoptic Mange in Bears

August 9, 2024

The Department of Wildlife Resources takes sarcoptic mange seriously and is concerned about potential population-level impacts as well as individual bear welfare. We recognize and appreciate the concerns of hunters, landowners, residents, and other agencies regarding this disease; we will continue to move forward with these stakeholder perspectives in mind. For reasons unknown, mange appears to be demonstrating a higher case rate and faster spread in Virginia than in some other areas; however, current genetic evidence suggests that the mite and the host species (bears, canids) are fundamentally the same as those in other nearby states. Long-term prospects are for the disease to likely remain endemic in areas already affected and for continued geographic expansion. With a primary goal of long-term population viability, DWR bear and health staff realize that we must manage this disease to the best of our abilities in the face of imperfect knowledge, extrapolating from knowledge about bear biology and sarcoptic mange epidemiology in other species.

However, given what we do know, we want to respond in such a way that will be more helpful than harmful over the long-term. For example, it is unknown if lethally removing mange-infested bears is more detrimental (i.e. by reducing the opportunity for natural recovery) or more beneficial in slowing disease spread (i.e. by decreasing mite transmission). Further, sarcoptic mange is not always easy to confirm by sight, therefore, care must be exercised in authorizing removal of mange-suspect bears. Additionally, transmission of the disease is thought to be more frequency than density dependent, so it is unknown whether decreasing or increasing population numbers on the “leading edge” would result in less disease transmission or simply a less resilient population. To evaluate these unknowns and guide action, the DWR plans to develop a mange management plan, with review and input from external managers and disease experts.

The DWR has been involved in mange response and monitoring since the outbreak was first documented in Frederick County in 2014. Initially, a lethal removal approach was instituted, but the response protocol was adapted several times (2020, 2022) as new information about natural recovery was made available and it became clear that the policy was not halting disease advancement. In addition to adapting its response to mange, the DWR has addressed sarcoptic mange in bears in additional ways over the last decade:

- *Research on Treatment, 2016-2019:* In collaboration with The Wildlife Center of Virginia (WCV), 10 black bears were experimentally treated for sarcoptic mange with either a 3-dose ivermectin or a 1-dose fluralaner protocol. Following treatment a subset of bears (4) were GPS collared prior to release. Within 1 year post release, 3 of these bears became re-infested with severe cases of sarcoptic mange and were humanely dispatched. (The 4th was found deceased in its den the following spring and was too decomposed to determine cause of death.) Consultation between DWR and the WCV concluded treatment was not an effective or humane option at the time due to the risk of reinfection. More recently, a study published out of Pennsylvania (Tiffin et al. 2024) demonstrated similar recovery rates with and without single dose ivermectin treatment, calling into question whether agency efforts and treatment associated risks

outweigh any additional recovery due to treatment. Since that time, the Pennsylvania Game Commission has elected to stop treating infected bears (DiSalvo, personal communication).

- *Research on population impacts planned/proposed since 2019:* Research specific to mangle and its potential effects on Virginia's bear population dynamics has been proposed as early as 2019-2020, around the time when we started seeing drops in bear harvest in the Northern Valley. Even without research specific to Virginia, we were closely following research in PA and other states before making large-scale changes in our responses. The current 3-year project with Virginia Tech, which is the largest research project on bears in Virginia in over 20 years, seeks to improve our knowledge on mangle impacts on bear populations and DWR's ability to make proactive management decisions to offset potential mangle outbreaks.
- *Leaders in collaboration:* In 2022, Virginia motivated and hosted a multi-state meeting, attended by 22 states plus universities, to discuss the current state of knowledge of mangle; this meeting initiated much of the research collaboration now occurring with other states in the region and with the Southeastern Cooperative Wildlife Disease Study (SCWDS).
- *Provided mangle bear replacement tag:* In 2022, DWR developed a process for providing a bear hunter with a replacement tag if they inadvertently took a bear that was infested with mangle and which they did not wish to keep. Tag reissuance is contingent upon the hunter submitting documentation (including photo and exact location) through a dedicated DWR mailbox. More details are provided on page 32 of the 2024-2025 Virginia hunting and trapping digest.
- *Proactive regulatory changes affecting harvest:* The DWR took the first step in making a regulatory change explicitly to address population concerns (by removing the 3-day early season) during the last regulation cycle, including the proactive step of removing the 3-day season in areas where mangle would likely spread to next. The Department is prepared to recommend additional regulatory changes, as warranted, during the upcoming cycle in the spring/summer of 2025.

Going forward, the DWR will continue to consider mangle a significant management issue, and we commit to additional emphasis in the following areas.

Improve the public mangle reporting system

- Continue to advise the public to use the Wildlife Conflict Helpline while also pursuing improvements through an alternative reporting system (as noted in bullet 2 below). Anyone can call or email the helpline Mon-Fri 8:00-4:30 to report an issue and talk to knowledgeable helpline staff; on weekends and after hours, they can leave a voicemail or email and get a call or email back the next business day, if requested. Trail camera photos and location information can be shared via the helpline's e-mail address: vawildlifeconflict@usda.gov. All data obtained from the helpline are shared daily (more frequently if necessary) with DWR staff. This system is sufficient for obtaining the basic information to inform management and research needs, as well as keeping the public informed of the geographic extent of the outbreak.
- Refine and finish development of an online platform as an alternative option for public and staff reporting of mangle cases. This project is currently in progress, with some ongoing efforts to resolve issues regarding data access and alerts to staff, and will be completed as soon as feasible. In addition to tracking mangle, this alternative reporting tool can help monitor other types of wildlife disease events. This system will not involve speaking with a person or leaving

messages, but depending on the type of reports submitted, alerts can be sent to DWR staff for direct follow-up when needed.

Enhance options for response to mange reports

- The DWR's response to individual cases will continue to be guided by the DWR internal staff bear mange response protocol and the DWR wildlife response policy, the latter of which dictates which type of situations necessitate an in-person response. This protocol is currently being reevaluated and will be updated as needed.
- The response protocol outlines situations required when authorization would be granted to dispatch a mange-infested bear for humane reasons. In general, bears that show evidence of hair loss AND either severe weight loss/emaciation, abnormal behavior (unaware of surroundings, unwilling to move, etc.), or severe, open, crusty, skin lesions are candidates for humane dispatch. Individuals that provide appropriate information to DWR Wildlife or Law Enforcement staff may be authorized, within current Virginia law, to dispatch a severely affected bear.
- The DWR will continue to provide replacement tags for mange infested bears inadvertently taken by hunters (see page 32 of the 2024-2025 Virginia hunting and trapping digest) as long as abuse of the system does not become apparent.

Expand involvement of bear hunters in sample/data collection

- As piloted during the 2023-24 hunting season, the DWR will seek the assistance of organizations with the primary focus of bear management to provide opportunities for bear hunters to collect samples, following clear and simple protocols, to support ongoing or new research/monitoring in Virginia and regionally (e.g., via SCWDS). Kits will be provided with materials and instructions for hunters to collect hair, teeth, and in some cases liver, skin, and blood.
- Develop a standardized log or journal for bear hunters in Virginia to voluntarily record bear observations, hunt metrics, etc. that can be shared with the DWR to supplement current monitoring and inform management decisions July 1, 2025.
- Investigate and expand use of citizen science through trail camera arrays. The Smithsonian Conservation Biology Institute (SCBI) has worked with citizens to deploy and monitor numerous trail cameras in the northern Shenandoah Valley for at least a decade; much data remains to be analyzed from that project that might shed light on mange dynamics, including onset of the outbreak and evidence of natural recovery. The SCBI study may be a model for collecting and analyzing data for management purposes.

Reduce hunting mortality to assist natural recovery of bear populations

- Regulatory changes to achieve population objectives can be proposed during the upcoming regulatory review and amendment cycle, which will provide all stakeholders an opportunity for input into any changes. Changes will be considered on a zone-by-zone basis. All season types will be reviewed and discussed, and an emphasis will be placed on preserving hunting opportunity while achieving harvest goals.
- The DWR continues to work to reduce issuance of kill permits for bears, although a complete prohibition is not feasible. DWR staff provide alternative recommendations and technical

assistance to landowners (e.g., fencing), and the agency's bear program is investigating additional mitigation strategies. However, some allowance for kill permits for bears needs to remain an option for agricultural producers, even in mange areas.

Increase public awareness about mange in Virginia and DWR actions toward it

- Expand outreach methods and opportunities, including updates to existing flyers and factsheets, article publications, and expansion of online information.
- Provide more frequent updates from the bear program to bear hunters and organizations with a primary focus of bear management, to include hot topics, regional news, etc.
- Work with Virginia Tech researchers to establish a public website for the ongoing study, to include an overview of the project, along with periodic updates.
- Provide a presentation on mange research or management to the Board of Wildlife Resources' Wildlife and Boat Committee semiannually, during the spring and fall committee meetings.

Develop a more comprehensive bear sarcoptic mange management plan

- This formal plan will guide decision-making and be at a stage in development where the Department can take appropriate actions during the regulatory review cycle occurring in the spring and summer of 2025.
- The plan will include goals for mange management, basic disease biology, history of mange in Virginia and the region, a communication strategy, response and recovery strategies, consideration of user conflicts, and approaches for surveillance and monitoring of mange.
- Although this plan will contain similar elements as the chronic wasting disease (CWD) management plan, management goals and strategies associated with mange will likely be different than those for CWD and other wildlife diseases.
- The plan will bring together existing guidance, such as the DWR internal staff bear mange response protocol, with any new scientific information gathered from experiences of other states and consultation with external experts on sarcoptic mange (e.g., SCWDS, Pennsylvania State University, etc.). Data collected during the current (2024-2026) Virginia Tech bear mange research project will be incorporated as it becomes available.
- Without limitation, management strategies may include additional emphasis on enforcement of bear feeding laws, changes in regulations to address impacts from mange, delineation of disease management areas (if warranted), and others. Strategies that have been used previously in Virginia and elsewhere with mixed results (e.g., treatment of bears) will be re-evaluated for efficacy and with full consideration of potential upsides and downsides. More novel strategies, such as aggressive removal of mange-infected bears in endemic or emerging areas, will also be evaluated and may be recommended if a greater consensus among practitioners and researchers in the mange field compel such a strategy.
- The DWR will seek expert review of the draft plan and, once finalized, will present the plan to the Board of Wildlife Resources.