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TECHNICAL BULLETIN
No. 2022 - 01

**SUBJECT : CONTROL AND ERADICATION OF FINLAYSON'S
SQUIRREL *Callosciurus finlaysonii*, AN INVASIVE ALIEN
SPECIES IN THE PHILIPPINES**

Pursuant to Republic Act 9147 (Wildlife Resources Conservation and Protection Act), Republic Act 8485 (Animal Welfare Act) as amended by Republic Act 10631, DENR Administrative Order 2016-12 (Adopting the Philippine Biodiversity Strategy and Action Plan), and Joint DENR-DA Administrative Order 2020-02 (Adopting the National Invasive Species Strategy and Action Plan – Philippines: 2020-2030) as the national framework for the management of invasive alien species in the country, these guidelines on the control and eradication of Finlayson's squirrel (*Callosciurus finlaysonii*) is hereby issued for guidance of all concerned.

Section 1. Rationale

Finlayson's squirrel *Callosciurus finlaysonii* is an invasive alien species in the Philippines. Studies revealed that Finlayson's squirrel have established breeding populations in Metro Manila, specifically in areas with sprawling tree vegetation/crops (e.g. Dasmariñas Village, Makati City, Ninoy Aquino Parks and Wildlife Center, Quezon City; and Alabang Hills Village, Muntinlupa City). They had been documented to feed on fruits (e.g. lanzones, durian, banana, santol, *duhat*, mango), vegetables (e.g. *patola*, *patani*) and young shoots of coconut trees. Besides potential pest to agriculture, Finlayson's squirrel also poses a potential threat to Philippine birds, as they had been observed to attack bird's egg and hatchling. They can cause damage to property e. g. chewing on electric wires (BMB field report 2014). They are also associated with pathogenic microorganisms that can affect human and animal health. Finlayson's squirrel is a native species of Vietnam, Myanmar, Cambodia, Lao PDR and Thailand. There are no known native squirrels in Luzon Faunal Region (Heaney et al. 2010).

Section 2. Objectives

This Technical Bulletin intends to address the risks of invasive alien species and to provide guidelines on the control and eradication of Finlayson's squirrel (*Callosciurus finlaysonii*) in the country.

Section 3. Scope and Coverage

This Technical Bulletin shall apply to all areas in the country, including Protected Areas established under Republic Act 7586 (NIPAS Act) as amended by Republic Act 11038 (Expanded NIPAS Act), where Finlayson's squirrel is recorded and observed.

Section 4. Definition of Terms

For the purpose of these guidelines, the terms below shall mean as follows:

1. **Control** – mitigating measures that minimize or reduce the negative impacts of IAS to biological diversity, human health, economy, and the environment.
2. **Eradication** - elimination of all populations of an Invasive Alien Species, including but not limited to resting and dormant stages, seeds, eggs, larvae, and propagules.
3. **Introduction** - the intentional or unintentional release of an alien species, subspecies or lower taxon (including any part, gamete or propagule that might survive and subsequently reproduce) outside its natural range (past or present). This movement can be either within a country or between countries.
4. **Invasive Alien Species** - an alien species that is able to establish viable populations by spreading to and colonizing natural or built ecosystems and may cause negative impacts to biological diversity, human health, economy, and the environment (CBD).
5. **Live traps**- a trap for catching an animal alive and uninjured by using baits.
6. **Native species** – a species occurring within its natural range (past or present) including the area which it can reach and occupy using its natural dispersal system; also referred to as indigenous; includes endemic species.

Section 5. Control of Finlayson's Squirrel

1. Under the Wildlife Resources Conservation and Protection Act of 2001 (RA 9147), the introduction of Finlayson's squirrels into the natural environment is prohibited, illegal and punishable with imprisonment of up to eight (8) years or a fine of up to P5,000,000.00, or both. Selling, buying, exchange and transporting Finlayson's squirrel is strictly prohibited. Consequently, all Finlayson's squirrels found in the natural environment shall be *ipso facto* forfeited in favor of the government;
2. The DENR field offices should actively retrieve and advise holders of previously issued wildlife permits for the possession of Finlayson's squirrels to voluntarily turn-over the animal to the DENR for proper disposition;

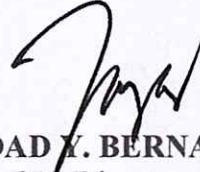
3. Wildlife regulations do not prohibit the collection of Finlayson's squirrel from the natural environment for humane disposition by the DENR. The public is hereby advised to report to the DENR any presence of Finlayson's squirrels in their area;
4. The concerned DENR Field Offices shall, and as necessary organize an IAS response team, to undertake the following:
 - a. Respond to reports on Finlayson's squirrel and proactively conduct field surveys to ascertain the presence of the species in certain areas under their jurisdiction;
 - b. Conduct control/eradication activities in collaboration with LGUs and concerned communities, e.g., homeowner's association of subdivisions and facilitate the integration of squirrel control/eradication in the animal control program of the LGUs;
 - c. Capture Finlayson's squirrel using live traps ("Annex A"). Captured squirrels shall be turned over to the DENR National or Regional Wildlife Rescue Centers for humane disposition by a licensed veterinarian.
5. Conduct public awareness on the invasive alien squirrel and encourage citizens to report any sightings of Finlayson's squirrel through a hotline to be established for the purpose by the DENR Regional Office and/or its partner LGUs/communities.
6. Special attention is to be given in the identification of Finlayson's squirrels to ensure that no indigenous species of squirrels are affected or collected. "Annex B" hereof provides an identification guide on Finlayson's squirrel and "Annex C" for native species of squirrels.

Section 6. Supervision, Monitoring, and Reporting

1. In case item item 4.b in Section 5 will be implemented for a particular LGU or community, a MOA/Partnership Agreement shall be executed between the DENR Field Office concerned and the concerned LGU or community. The MOA/Partnership Agreement shall apply the recommended control and management activities under Section 5 hereof;
2. The concerned DENR Field Office shall monitor and evaluate the progress of control and eradication activity at least on a quarterly basis and submit status report to their respective Regional Office which in turn shall form part of the consolidated regional report on wildlife conservation submitted quarterly to the Biodiversity Management Bureau.

3. Support for activities under the work program for control and eradication of Finlayson's squirrel shall be included in the corresponding work and financial plan and budgetary request of DENR Field Offices.

This Technical Bulletin is issued for the information and guidance of all concerned.



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OIC Director



“ANNEX A”



Figure 1. Cage trap for live capture of squirrels (*approx. 12" x 6" x 6"*)

Finlayson's Squirrel Trapping Protocol

1. In observance of humane handling and disposition of Finlayson's squirrel, they should be captured using live traps/cage trap as above;
2. Installation and management of traps:
 - a. Cage traps (Figure 1) are installed in nesting and feeding trees or along routes of squirrels;
 - b. Secured in a tree branch not accessible to children using ropes e.g. bungee cords;
 - c. Fruits can be used as bait (ripe mango is highly recommended);
 - d. Traps should be checked at least every three (3) hours;
 - e. The trap must be closed at night to avoid by-catch of nocturnal and non-target animals;
 - f. For safe handling of squirrels, wear leather gloves, long-sleeved clothing, and long pants. Trapped squirrels should not be removed from the cage trap until they are turned-over to the DENR Wildlife Rescue Center (DENR-WRC);
 - g. As recruitment of new individuals may occur, trapping activities should be undertaken simultaneously in contiguous or adjoining vegetated areas;
 - h. Trapping activity shall be discontinued if no squirrels are captured for at least three (3) consecutive days;

“ANNEX B”

The Invasive Alien Squirrel



Figure 2. Finlayson's squirrel. Photo by John Berhel Doria, DENR-BMB.

Finlayson's squirrel / Variable squirrel (*Callosciurus finlaysonii*)

Occurrence:

Metro Manila; Also reported in Batangas, Bulacan, Rizal, and Nueva Ecija

Description:

Weight: Up to 250 g

Body and tail length: 400 mm (slightly bigger than native squirrels)

Color: Grayish brown at the back and white abdomen; white tip of tail

Habits: Tree dweller, fruit eating; also eat bird eggs

Habitat: Agroforestry areas; orchards

“ANNEX C”

The Native Squirrels of the Philippines



Figure 3. Philippine pygmy squirrel. © The Field Museum. Photo by DS Balete

Philippine pygmy squirrel

Exilisciurus concinnus

Description:

A small squirrel with rather plain brown or rusty-brown pelage, a relatively long, furry tail, and large eyes.

Body measurements: Total length 159-167 mm; tail 69-74 mm; hind foot 25-28 mm; ear 11-12 mm; weight 25-35 g.

Distribution: Endemic to the Mindanao Faunal Region



Figure 4. Northern Palawan tree squirrel. Photo by Marcel Holyoak

Northern Palawan tree squirrel

Sundasciurus juvencus

Description:

The dorsal pelage is brown with rusty-red or gray tips, and the abdominal fur is rusty-orange. The tail has long, dark rusty-brown hairs except for the tail-tip, which is dark brown or black.

Body measurements: Total length 368-400 mm; tail 162-205 mm; hind foot 45-49 mm; ear 16-19 mm; weight unknown.

Distribution: Central (north of Abo-abo) and northern Palawan Island



Figure 5. Southern Palawan tree squirrel. © The Field Museum. Photo by DS Balete

Southern Palawan tree squirrel

Sundasciurus steeri

Description:

The pelage is a rich rusty-brown dorsally, and the ventral fur is bright rusty-orange. The tail hairs are black and rusty-red.

Body measurements: Total length 359-375 mm; tail 149-173 mm; hind foot 41-46 mm; ear 18-20 mm; weight unknown.

Distribution: Palawan Faunal Region only



Figure 6. Palawan flying squirrel. No known copyright restrictions (Public Domain)

Palawan flying squirrel

Hylopetes nigripes

Description:

A large flying squirrel, with large eyes and thick, soft, brown fur. Some individuals have prominent white spots. It has a membrane used for gliding extends between the forelimb and hindlimb.

Body measurements: Total length 590-630 mm; tail 335-360 mm; hind foot 53-59 mm; ear 35-37 mm; weight unknown.

Distribution: Palawan Faunal Region only



Figure 7. Palawan montane tree squirrel. © The Field Museum. Photo by DS Balete

Palawan montane tree squirrel


Sundasciurus rabori

Description:

A small tree squirrel with dark brown pelage dorsally and dark brown fur tipped with silver-gray ventrally.

Body measurements: Total length 310-331 mm; tail 128-145 mm; hind foot 39-44 mm; ear 14-18 mm; weight 168 g

Distribution: Mt. Mantalingahan and Mt. Gorangbato, Palawan Island only

 <p>Figure 7. Philippine tree squirrel/Mindanao tree squirrel. © The Field Museum. Photo by MRM Duya</p>	<p>Philippine tree squirrel/ Mindanao tree squirrel <i>Sundasciurus philippinensis</i></p> <p>Description: A medium-sized squirrel with dark brown hairs tipped with pale brown dorsally. The ventral pelage is gray or pale brown. There is geographic variation in colour. Body measurements: Total length 325-382 mm; tail 150-177 mm; hind foot 46-50 mm; ear 20-22 mm; weight 205-265 g Distribution: Widespread within the Mindanao faunal region</p>
<p>No photo available</p>	<p>Mindanao flying squirrel <i>Petinomys crinitus</i></p> <p>Description: Silky brown or reddish-brown fur; there is black or dark brown fur around the eyes, and on the ears, feet, and most of the tail. Body measurements: Total length 570-610 mm, tail 280-333 mm; hind foot 55-60 mm; ear 20-24 mm; weight unknown. Distribution: Mindanao Faunal Region only</p>
<p>No photo available</p>	<p>Culion tree squirrel <i>Sundasciurus moellendorffi</i></p> <p>Description: Medium to pale brown with pale brown or gray tips dorsally, and the abdomen is creamy-white. Hairs on the posterior tip of the tail are dark brown or black Body measurements: Total length about 399 mm; tail about 190 mm; hind foot about 46 mm; ear about 20 mm; weight unknown. Distribution: Records are from Culion, Iloc, Linapacan, and Tampil islands in Palawan only.</p>

No photo available

Busuanga tree squirrel
Sundasciurus hoogstraali

Description:

Brown dorsally with pale brown tips on the hairs, and pale brown on the abdomen

Body measurements: Total length 395-425 mm; tail 182-205 mm; hind foot 46-48 mm; ear 18-20 mm; weight unknown.

Distribution: Recorded only from the islands of Busuanga, Calait, and Coron in the Calamianes Islands.