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Rodents and One Health; An under-recognized public health threat in Sri Lanka - II

***This is the second article of two in a series on* "Rodents and One Health; An under-recognized public health threat in Sri Lanka"**

Importance of rodent surveillance

Rodent surveillance serves as an early warning system providing information on rodent density/ species details, environmental risk factors, and disease transmission patterns, enabling detection of zoonotic pathogens for timely interventions, particularly in rodent borne disease prone setting.

Rodent surveillance

Rodent surveillance can be conducted using a combination of methods. Active vs. Passive Rodent Surveillance: is to move beyond "complaint-based" systems to proactive "Rat Indexing"(an inspection process in a targeted area to identify active rat signs and conditions favourable for rats).

Table 1. Methods of Rodent Surveillance

Method	Main Purpose
Environmental surveys	Detect signs of rodent activity: (Rodent droppings/Live Burrow count/Gnaw marks/Runways/ Damage assessment)
Trapping surveys	Estimate rodent abundance and species composition, Live traps- capture – mark- recapture/Snap traps/Trap success rate)
Community-based reporting	Detect local infestations through community perceived signals
Digital surveillance	Identify hotspots and monitor trends (Remotely-activated cameras, motion-sensored camera)

Rodent surveillance can be broadly categorized into indirect, relative, and absolute methods. **Indirect methods** assess signs of rodent activity, and are useful to determine the requirement of control measures.

Relative methods estimate rodent abundance using indicators such as trap success rates.

Absolute methods attempt to determine the actual population size through approaches such as census counts or capture–mark–recapture studies.

Absolute methods are often resource-intensive and mainly used in research settings. In public health practice, environmental assessments and trapping surveys are more commonly employed due to their practicality and cost-effectiveness.

A comprehensive rodent surveillance would include molecular diagnostics, serological testing, and ecological surveillance to track the circulating pathogens in rodent reservoirs. Selection of surveillance methods should be guided by the objectives of the programme, and available resources.

Integrated Rodent Management

Integrated Rodent Management aims to reduce rodent populations through a series of preventive measures while addressing the environmental conditions that support their survival with responsible use of rodenticides where necessary.

Table 2. Rodent control approaches

Control Approach	Examples
Environmental control	Habitat Manipulation (Waste management, improved drainage), Trim vegetation to limit access
Structural control	Rodent-proofing, Sealing entry points, Improving food storage, Mechanical traps, Electrical fencing,
Biological control	Conservation of natural predators such as Barn owls, snakes, cats, and other predatory mammals,
Chemical control	Rodenticides (acute/chronic), Bait stations, Chemical Repellents, Chemosterilants for fertility control
Ecologically Based Rodent Management (EBRM)	Community-based habitat management, Control activities with public awareness, Improved grain storage, Environmental sanitation

International evidence on Rodent Control

In the United Kingdom and Ireland, rodent management is guided by national best-practice frameworks that emphasize responsible use of rodenticides.

In Canada, Alberta's long-standing Rat Control Program is recognized as a successful example of government-led rodent control, relies heavily on Albertans to report observations of rats.

The European and Mediterranean Plant Protection Organization (EPPO) has developed guidelines on Good Rodent Control Practice.

Successful community-based programmes have been implemented in countries such as Vietnam, Cambodia, Tanzania, and Mauritania, focusing on EBRM including conservation of natural predators such as barn owls.

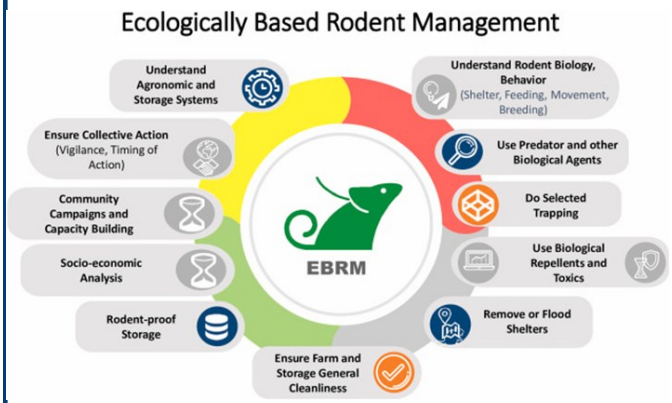
Legal Basis for Rodent Control in Sri Lanka

While Sri Lanka has a dedicated regulatory framework for mosquito-borne disease prevention, rodent control is addressed through multiple legislative provisions relating to plague prevention, environmental sanitation, waste management, food safety, and pesticide regulation.

Section 53 of the General Regulations, under Quarantine and Prevention of Diseases Ordinance empower authorities to undertake rat control where necessary. Additional provisions considering plague control, such as rat-proofing of grain stores, handling of dead rats, and rodent control measures for ships and aircraft are also available.

The Food Act and Food Hygiene Regulations contain measures to prevent food contamination by rodents. Local authority legislations may also support rodent control through provisions relating to waste management, environmental sanitation, and nuisance control. Inclusion of rodents within the definition of pests under Control of Pesticides Act covers the responsible rodenticide use.

Together, these legislative provisions provide an important legal basis for rodent control in Sri Lanka.



Source: "*From Problem to Progress": Rodent Management in Agricultural Settings of Sub-Saharan Africa and Calling for an Urban Perspective,*

Future Directions for Rodent control

Control of rodents in smaller areas usually ineffective due to their migration from surrounding untreated fields. Sustainable rodent control requires moving beyond reactive measures towards integrated approaches. The principles of Ecologically Based Rodent Management (EBRM) closely align with the One Health approach as it highlights the interconnectedness of human health, animal health, and the environment.

Advances in digital surveillance, geographic information systems, ecological modelling, and other emerging technologies provide new opportunities for early detection of rodent activity and evidence-based decision-making.

Conclusion:

- Considering the overall public health and economic impact of rodents, rodent surveillance and Ecologically Based Rodent Management (EBRM) is particularly relevant to Sri Lanka.
- Its effective implementation requires collaboration among health, environmental, and local government sectors within a One Health framework. as environmental sanitation, waste management, and community participation remain fundamental components of it.

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Table 1: Distribution of Notified Diseases reported by Medical Officers of Health 01st – 07th June 2026 (23rd Week)

RDHS	Dengue Fever		Dysentery		Encephalitis		En. Fever		F. Poison-		Leptospirosis		Typhus		Viral Hep.		H. Rabies		Chickenpox		Meningitis		Leishman.		Tuberculosis		Leprosy		WRCD	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	T*	C**
Colombo	507	8199	2	12	0	2	0	4	1	15	3	169	1	2	0	9	0	0	10	300	3	28	0	3	35	810	6	77	88	100
Gampaha	502	5490	3	21	4	22	0	0	2	20	23	274	0	5	0	6	0	0	41	464	22	134	1	19	28	452	4	40	92	100
Kalutara	318	2713	3	27	0	3	1	8	42	58	16	223	0	5	1	12	0	0	11	432	8	42	0	2	34	259	2	42	92	100
Kandy	286	1974	1	36	3	7	0	5	3	37	7	116	2	25	0	15	0	0	21	370	20	61	3	39	14	240	0	12	99	100
Matale	38	751	0	12	1	4	0	0	0	2	11	114	0	3	0	5	0	0	5	112	7	29	23	273	5	83	0	20	82	92
Nuwara Eliya	13	305	1	29	1	4	0	3	0	14	6	150	1	25	0	11	0	0	8	281	22	111	0	0	5	118	1	4	96	100
Galle	150	2547	3	16	1	9	1	6	5	48	24	292	0	22	2	14	0	0	28	564	12	83	0	2	18	195	1	22	86	93
Hambantota	100	1092	0	30	0	2	0	0	1	32	18	116	1	15	0	11	0	0	4	137	4	24	12	254	3	60	2	13	98	100
Matara	214	2651	0	10	1	2	0	1	0	11	19	201	0	13	0	15	0	0	9	338	17	114	3	80	4	73	0	12	98	100
Jaffna	18	673	4	36	1	6	0	19	1	75	2	48	4	214	0	1	0	0	5	234	2	26	0	1	4	89	1	8	100	100
Kilinochchi	4	173	1	6	0	0	0	7	0	1	1	55	1	11	0	3	0	1	0	69	0	5	1	2	1	18	0	1	100	100
Mannar	5	96	0	0	0	3	0	0	0	3	1	28	0	2	0	1	0	0	0	44	0	2	0	3	3	22	1	2	100	100
Vavuniya	9	116	0	14	0	4	0	2	0	8	0	55	0	3	1	1	0	0	1	86	2	15	2	20	1	37	2	5	100	100
Mullaitivu	3	54	0	5	0	1	0	0	0	8	2	29	0	1	0	2	0	0	2	10	2	8	0	8	0	16	0	4	100	100
Batticaloa	48	971	2	45	0	5	0	2	0	16	4	97	0	0	0	14	0	0	6	159	1	23	0	10	3	71	0	50	100	100
Ampara	15	248	0	43	0	1	0	1	0	8	3	97	0	2	2	6	0	0	9	211	7	41	0	9	1	22	0	15	93	100
Trincomalee	38	485	0	15	0	4	0	2	0	11	2	52	0	8	0	2	0	0	4	123	1	21	1	13	1	77	0	6	98	100
Kurunegala	100	1026	4	18	1	12	0	3	0	62	30	211	1	21	1	7	0	0	22	477	50	189	17	206	8	152	2	37	91	100
Puttalam	43	536	2	13	2	9	0	0	0	7	12	153	0	17	0	5	0	4	4	91	10	83	0	10	3	90	0	15	84	100
Anuradhapura	24	357	1	12	1	7	0	1	7	48	4	168	0	19	0	8	0	0	30	308	16	71	24	379	8	132	1	31	92	100
Polonnaruwa	23	286	0	14	1	5	0	2	0	57	17	182	0	4	1	20	0	0	17	252	4	26	14	275	4	41	5	51	100	98
Badulla	36	502	1	28	0	7	0	3	3	10	12	150	2	23	16	94	0	0	7	231	37	159	3	62	9	123	0	11	99	100
Monaragala	35	479	0	12	0	3	0	1	0	5	4	176	0	25	2	35	0	1	5	151	4	44	8	119	4	51	0	10	100	100
Ratnapura	198	2664	0	22	0	6	1	5	0	15	24	523	0	21	0	7	0	0	11	242	3	37	2	102	9	189	0	19	97	100
Kegalle	92	1095	1	29	0	3	0	4	2	21	24	217	0	10	1	8	0	0	9	375	9	47	1	11	8	149	0	5	99	100
Kalmunai	13	595	0	26	1	1	0	0	0	15	1	45	0	1	0	1	0	0	9	321	3	22	0	0	1	57	0	22	100	100
SRILANKA	**2832**	**36078**	**29**	**531**	**18**	**132**	**3**	**79**	**67**	**607**	**270**	**3941**	**13**	**497**	**27**	**313**	**0**	**6**	**278**	**6382**	**266**	**1445**	**11**	**1902**	**214**	**3626**	**28**	**534**	**96**	**99**

Source: WRCD module of the EPINET.
A = Cases reported during the current week;
T*=Timeliness refers to returns received on or before 07th June, 2026.
B = Cumulative cases for the year.
Total number of reporting units 360
C**-Completeness;
C**-Completeness;

Table 2: Selected Vaccine Preventable Diseases & AFP 01st – 07th June 2026 (23rd Week)

Disease	No. of Cases by Province									Number of cases during current week in 2026	Number of cases during same week in 2025	Total number of cases to date in 2026	Total number of cases to date in 2025	Difference between the number of cases to date in 2026 & 2025
	W	C	S	N	E	NW	NC	U	Sab					
AFP[1]	00	00	00	00	00	00	00	00	00	00	01	35	28	25%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Mumps[2]	00	00	00	00	00	00	00	00	00	00	05	65	73	-10.9 %
Measles[3]	00	00	00	00	00	00	00	00	00	00	00	09	02	350 %
Rubella[3]	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
CRS[2]	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Tetanus[2]	00	00	00	00	00	00	00	00	00	00	00	02	03	-33.3 %
Neonatal Tetanus[2]	00	00	00	00	00	00	00	00	00	00	00	00	00	0 %
Japanese Encephalitis[3]	00	00	00	00	00	00	00	00	00	00	01	00	04	-100 %
Whooping Cough[2]	00	00	00	00	00	00	00	00	00	00	01	13	11	18.2 %

Key to Table 2

Provinces: **W**: Western, **C**: Central, **S**: Southern, **N**: North, **E**: East, **NC**: North Central, **NW**: North Western, **U**: Uva, **Sab**: Sabaragamuwa.

Data Sources:
Weekly Return of Communicable Diseases: Diphtheria, Mumps, Tetanus, Neonatal Tetanus, Whooping Cough.
Special Surveillance: AFP, Measles, Rubella, CRS.

AFP[1] = No Polio cases
Mumps[2], CRS[2], Tetanus[2], Neonatal Tetanus[2], Whooping Cough[2]—Clinically and/ or laboratory confirmed cases
Measles[3], Rubella[3], Japanese Encephalitis[3]— Laboratory Confirmed cases

AFP—Acute Flaccid Paralysis
CRS = Congenital Rubella Syndrome
NA = Not Available

AFP and all Vaccine Preventable Diseases except Mumps should be investigated by the MOH Personally.

All patients presenting with fever and a maculopapular rash must be promptly notified and investigated. Blood samples and throat swabs should be collected at the appropriate time window

Comments and contributions for publication in the WER Sri Lanka are welcome. However, the editor reserves the right to accept or reject items for publication. All correspondence should be mailed to The Editor, WER Sri Lanka, Epidemiology Unit, P.O. Box 1567, Colombo or sent by E-mail to **chepid@sltnet.lk.** The Epidemiology Unit should be formally acknowledged in all resulting publications as the primary data source.

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