

## **Guidelines on Rodent Prevention and Control in Recreation Areas**

### **Rodent Problem in Recreation Areas**

Recreation areas could be prone to rodent infestation as the environments often provide the basic living conditions (namely food, harbourage and passage) to the rodents. For example, food premises, kiosks and animal / bird cages that might be present in a recreation area as well as visitors' activities (e.g. picnicking) could provide food sources for rodents. Planting areas, nurseries, refuse collection facilities, service rooms and other facilities could be susceptible to rodent intrusion if their locations, structural designs as well as daily maintenance are inappropriate. Work sites and prolonged storage or accumulation of articles / paraphernalia / materials / waste would also provide favourable harbouraging places for rodents. Therefore, risk of rodent infestation in recreation areas should not be overlooked.

### **Rodent Prevention and Control**

2. Generally, rodent control methods can be classified into fundamental control and supplementary control. Fundamental control includes elimination of food and harbourages for rodent as well as implementation of rodent-proofing and rodent preventive measures, while supplementary control refers to direct control methods such as trapping and poisonous baiting.

#### **Fundamental Control**

##### *Elimination of Food, Harbourage and Passage*

3. Constant attention should be given to the availability of food and harbourages for rodents, which are the two most important factors that lead to rodent infestations. Rodents are omnivorous and they consume human's food as well as food residues / remnants. Particular attention should be paid to the storage and disposal of anything which could be taken by rodents as food. Food for human consumption should be kept in metal or glass containers with well-fitted covers; fresh produce and stored products (e.g. grains) should be stored in rodent-proof stores or rooms, etc. Improperly disposed food remnants / debris, and bird / pet feed left in the environment are attractive food sources for rodents. Elimination and disposal of such food matters in a proper and hygienic way is of paramount importance. Refuse should be dumped in metal or plastic bins / receptacles with well-fitted covers but not littered around in order to cut the food sources for rodents.

4. In recreation areas, there are numerous places that can shelter rodents. Rodents could harbourage at any concealed parts of buildings, structures and facilities. Flower beds particularly those in close distance to refuse collection facilities, food premises or kiosks are highly susceptible to rodent infestation. Voids between structures / articles, space / areas unattended by humans for a considerable period, etc. also provide favourable hiding places for rodents. To tackle with this issue, we can make use of different methods (e.g. sealing, filling) to eliminate the harbourages for rodents.

5. When dealing with rodent problem, it should always be remembered that 'Prevention is better than cure'. If the environmental sanitation is maintained at a high standard, harbouraging places for rodents are eliminated and their passages are blocked, rodent infestation can always be prevented to a large extent.

#### *Rodent-proofing*

6. Rodent-proofing of buildings / structures is another important aspect to prevent rodent infestation. It should be applied whenever it is possible and practical to do, particularly for places where food is present.

7. There are many ways by which rats and mice may enter a building / structure, and a very thorough search is necessary to locate all possible means of rodent entry. In general, openings greater than 6 mm should be sealed or screened to block rodent (including rats and mice) movement. The principles / specifications / examples of rodent-proofing are provided below for reference:

- (a) Rat holes and other small openings can be blocked by filling or covering them with appropriate materials (e.g. fine concrete, cement mortar, 20 gauge metal sheet or barbed wire balls etc.) after rodent disinfestation.
- (b) Broken or missing gratings should be replaced, and the apertures between bars of metal grating should not be greater than 6 mm.
- (c) Ventilation grids and other similar openings may be proofed either with 24 gauge expanded metal with 6 mm mesh, or with 22 standard wire gauge (SWG) galvanised steel woven wire cloth with 6 mm mesh.
- (d) Space beneath doorways resulted from worn steps should be repaired or renewed. Wooden doors have to be protected at the bottom by fitting a 20 gauge galvanised steel 'kicking-plate' of at least 300 mm high on the outside, with a maximum door clearance of 6 mm. A similar metal plate should be fixed to the door frame to form a continuous band of metal.

- (e) Openings and passing for pipes, wires and ducts through walls, etc. should be completely sealed.
- (f) Voids or 'dead' spaces in buildings may be inevitable and may in fact be purposely built to house some basic facilities (e.g. pipes, electrical conduits and air-conditioning ducts above suspended ceiling). Nevertheless, these voids should be made inaccessible to rodents and the materials and decorative finishing used should be resistant to gnawing by rodents. There should be no voids between the sides, backs and bottoms of built-in furniture and the adjacent walls or floors. There should be no voids greater than 6 mm in width behind wooden skirting. Voids among battens installed behind panel should be kept to a minimum and be made inaccessible to rodents, and the materials used should be resistant to rodent gnawing.
- (g) Places such as food preparation areas and food stores should NOT have false ceilings. Although there may be concern that the overhanging pipes and ducts will be exposed in the lack of false ceiling causing undesirable outlook of the places, it is important to understand that the warmth of a food preparation area and the scent of food will attract rodents, and that a false ceiling will provide them with an ideal harbourage and nesting place. These areas / rooms should strictly leave no access, even the very small one, to rodents.
- (h) Vertical pipes could be used by rats to reach entry points or harbouraging places. A rat would find it difficult / unable to climb (by wedging itself) between a pipe and a wall / vertical surface or between adjacent pipes if the distance between the two supporting structures is at least 100 mm apart. Alternatively, they could be installed with a circular / inverted funnel shaped rat guard made of 20 gauge galvanised steel sheet, projecting about 230 mm from the vertical pipe and with diameter of at least 550 mm (assuming diameter of the pipe is less than 90 mm); the gap between the rat guard and the pipe should not be greater than 6 mm. Make sure there is no projection or any other structure nearby to serve as foot step for rodents to jump over the rat guard.

### Supplementary Control

#### *Trapping*

8. Trapping is one of the common methods for controlling rodents. It is the preferred method when the use of rodenticides is considered undesirable, e.g. poisoned rodents dying in inaccessible areas would cause bad odour. Break-back / snap traps are used to instantly kill rats and mice, whereas wire cage traps are used to capture live rodents. Wire cage traps should be baited and set on the first day that they are laid.

In general, wire cage traps found in the local market are designed for trapping rats, but not mice. To ensure safety of the public, traps should be set in places not readily accessible to visitors and pets, in concealed locations or in protective devices base on the ground situation.

9. Only when encountering heavy rodent infestation where other rodent control methods have been exhausted without giving satisfactory results may glue traps be considered as a tool to supplement the rodent control programme. It is important to observe that glue traps **should not** be set outdoor or in areas with possible activities of other non-target animals (e.g. birds, cats and reptiles, etc.). Consideration may be given to enclosing the glue trap in a lockable, tamper-resistant rodent station or dedicated rodent glue trap tunnel for complete protection against non-target animals. Frequent inspections should be arranged to each glue trap laid and any trapped rodent should be collected and killed in a humane manner, and their carcass be properly handled / disposed of as soon as possible. To follow international recommendation, at least one inspection should be made every 12 hours. The use of glue traps should be suspended as soon as the situation of rodent infestation is alleviated.

10. Rats and mice feel safe by moving close to vertical surfaces such as wall, rather than across open areas. Traps should therefore be placed at right angle to the vertical surface against which rodents are known or suspected to run. When snap traps are used, they should extend from a vertical surface at a right angle, with the trigger end facing the vertical surface (Fig 1). If traps are set parallel to the vertical surface, set them in pairs, with the triggers situated to intercept rodents coming from either direction. Similarly, when cage traps are used, they should also be placed at right angle with the opening of the trap facing the vertical surface. If they are set parallel to the vertical surface, they should be set back-to-back in pair (with opening facing the two ends) (Fig 2). The position for traps should be carefully chosen; they should remain in the same position throughout the trapping period and should be set firmly on ground whenever possible. Traps for catching mice are suggested to be placed about 1 m apart while traps for rats be placed about 3 to 5 m apart. The distances could be adjusted according to the actual environment as well as rodent infestation and activities.



Fig 1: Setting a snap trap at right angle to the vertical surface



Fig 2: Setting traps parallel to the vertical surface

11. If a non-target animal is captured and it is injured or suspected to be injured, contact Society for the Prevention of Cruelty to Animals (SPCA) at their emergency hotline 2711 1000 for assistance.

12. Thorough survey is needed to ascertain the locations of rodent harbourages and disposal routes. Base on the result of the survey, as many traps as possible and reasonable should be laid. It is suggested that at least six traps should be laid for one or two rodents.

13. Rats consume a great variety of food but they are very sensitive to the freshness of food, thus fresh baits should be used as far as possible and baits that have dried out or spoiled should be replaced immediately by fresh ones. Using mixed baits in traps can, to a certain extent, minimise the impacts of environmental factors, human practices, or variations in rodent behaviour on the efficiency of traps. As food preference of rodents varies from time to time and from place to place, food baits that work in a location at a particular time point may not have the same attractiveness to rodents in other location(s) or in the same location at other time points. Therefore, trials on different food baits should be conducted at the beginning of each trapping operation at individual location to find out the best combination of food baits. Based on previous test results, bread with peanut butter, barbeque pork (char siu) and sweet corn could be good baits for rodent trapping. Other appropriate food baits could also be included whenever applicable.

14. It is better to carry out repeated trapping programmes with a large number of traps laid for a few days, rather than distributing scattered traps over a wide area for a prolonged period. For a trapping programme, traps should be laid for at least five consecutive days.

### *Poisonous Baiting*

15. The most commonly used rodenticides are anticoagulant rodenticides, which

can be broadly classified into multiple-dose and single-dose rodenticides. Anticoagulant rodenticides would not induce bait shyness of rodents.




16. Multiple-dose anticoagulant rodenticides are effective against all species of local commensal rodents. The active ingredient of the rodenticide (Dustable Powder at concentration of 0.75%) should be added to and well mixed with other bait bases (uncooked rice, oil and sugar) to form a rodenticide bait mixture with concentration of 0.0375% before use.

17. Single-dose anticoagulant rodenticides are also effective against all rodent pests. They are formulated into different ready-to-use forms, such as scrap bait, block bait, etc. In general, scrap baits are more acceptable to rodents than block baits as the high wax content of the latter render them less palatable to rodents. The poisonous baits are to be evenly distributed in the target area according to the application rate as stated on the product labels. Base on the ground situation, poisonous baits should be pushed into rat burrows, applied in places not readily accessible to visitors and domestic animals, placed in protected positions / proper bait boxes, etc. It takes a few days for the poisonous baits to effect and most of the poisoned rodents will die within two weeks after ingesting a lethal dose of poisonous baits.





18. Anticoagulant rodenticides are toxic; they should be handled with great care. Information stated on the product label should be strictly followed to ensure effectiveness and safety. Adequate verbal and written warnings must be given to members of the public, visitors and relevant parties to avoid any accidental poisoning.

Food and Environmental Hygiene Department  
February 2025




**Table 1 Problems Commonly Observed in Recreation Areas and Suggested Improvement Works**

Item	Problems	Suggested improvement works
<b>Flower bed and Vegetation</b>		
1	<p>Wall of flower bed is too low or with protruding structure / uneven surface.</p> 	<ul style="list-style-type: none"> <li>● Wall of flower bed should be at least 1 m high with smooth external surface without any protrusion.</li> </ul> 
2	<p>Weep hole of flower bed could be encroached by rodent as harbourage.</p> 	<ul style="list-style-type: none"> <li>● Screen weep holes with grating of aperture not greater than 6 mm.</li> </ul>



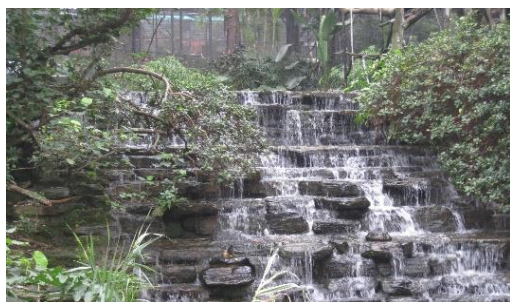
<p>3</p>	<p>Soil surface covered by low rise dense vegetation is vulnerable to rodent intrusion and makes detection of rodent infestation difficult.</p> 	<ul style="list-style-type: none"> <li>● High rise vegetation exposing the soil surface is preferable.</li> </ul> 
<p>4</p>	<p>Boulders or other ornamental structures might provide sheltered voids for burrowing of rodents.</p>  	<ul style="list-style-type: none"> <li>● Avoid setting boulders or other ornamental structures on flower beds.</li> <li>● Surround the base of boulders and ornamental structures with pebbles or gravels.</li> <li>● Regular inspections to detect suspected rat holes and take prompt rodent control actions whenever rodent infestation is confirmed.</li> </ul>



<p>5</p>	<p>Surface channels along flower bed or dense vegetation provide concealed runways for rodent.</p> 	<ul style="list-style-type: none"> <li>● Surface channels should be set at a distance from flower bed or other dense vegetation.</li> <li>● Install wire meshes with apertures not greater than 6 mm underneath the gratings / concrete slabs of the surface channels to prevent access of rodents.</li> </ul>
<p>6</p>	<p>Extensive root system of trees (e.g. banyan) and extensive growth of plants (e.g. bamboo) create natural harbourages for easy burrowing of rodents.</p>  	<ul style="list-style-type: none"> <li>● Avoid planting banyan trees or bamboos, particularly in places with high risk of rodent infestation.</li> <li>● Expose the roots of the tree by removing nearby vegetation and refuse to facilitate inspection for rodent signs.</li> <li>● Plug holes / voids at roots with appropriate rodent-proof materials.</li> <li>● Regular inspections to detect suspected rat holes and take prompt rodent control action whenever rodent infestation is confirmed.</li> </ul>

## Animal / Bird Cages

- 7 The landscape of animal / bird cages is highly susceptible to rodent intrusion. The soft soil surface can be easily burrowed by rodent. The boulders and other ornamental structures provide large number of sheltered voids for rodents.







- Construct the landscape foundation with concrete and cover with shallow soil layer to prevent burrowing of rodents.
- Avoid setting boulders or other ornamental structures on soil surface.
- Surround the base of boulders and ornamental structures with pebbles or gravels.
- Regular inspections to detect suspected rat holes and take prompt rodent control action whenever rodent infestation is confirmed.



- 8 Unattended animal / bird feed provides rodents with handy food source.


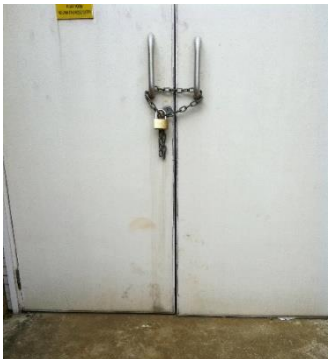



- Residue of animal / bird feed must be removed promptly after feeding and should not be left unattended.
- For feeding of bird, consider hanging the container with feed at a height of more than 1 m above ground to avoid reaching by rodents.
- Put feeding container at a height of more than 1 m and stay far away from surrounding objects / facilities.






<p>9</p>	<p>Dense vegetation around animal / bird cage provides abundant harbouraging places for rodent.</p>  	<ul style="list-style-type: none"> <li>● Avoid planting dense vegetation around animal / bird cages.</li> <li>● Fence of cages should be made of 24 gauge expanded galvanised steel or 22 SWG galvanised steel woven wire cloth with mesh size not bigger than 6 mm.</li> <li>● A buffer zone of at least 30 cm constructed with rodent-proof material, such as concrete, is suggested to be set immediately outside the animal / bird cages.</li> <li>● Screen opening / drain holes connected to the animal / bird cages with 24 gauge expanded galvanised steel or 22 SWG galvanised steel woven wire cloth with mesh size not bigger than 6 mm.</li> </ul>
<p>10</p>	<p>Drain hole provides rodents with access point to animal / bird cages for food and / or harbourages.</p> 	<ul style="list-style-type: none"> <li>● Screen openings / drain holes with 24 gauge expanded galvanised steel or 22 SWG galvanised steel woven wire cloth with mesh size not bigger than 6 mm.</li> </ul> 

<p>11</p>	<p>Soil surface around pond / pool provides rodent with burrowing ground.</p> 	<ul style="list-style-type: none"> <li>● Pave the surrounding areas of pond / pool with concrete.</li> <li>● If surface channel is present, install 24 gauge expanded galvanised steel or 22 SWG galvanised steel woven wire cloth with mesh size not bigger than 6 mm underneath the gratings / concrete slabs of the surface channels.</li> <li>● Avoid setting boulders or other ornamental structures in immediate surroundings of pond / pool.</li> </ul>
<p>12</p>	<p>Broken wall of animal / bird cage provides entry point for rodents.</p> 	<ul style="list-style-type: none"> <li>● Regular inspections to animal / bird cages to identify defective structures for prompt repairment.</li> </ul>

Others		
13	<p>Ventilation louvres on door / wall of switch room / plant room provide entry points for rodents to the interior of the room.</p> 	<ul style="list-style-type: none"> <li>● Install 24 gauge expanded galvanised steel or 22 SWG galvanised steel woven wire cloth with mesh size not bigger than 6 mm at the ventilation louvres on inner side of the door / wall.</li> </ul>
14	<p>Gap between doors of room (e.g. switch room, plant room, etc) and threshold clearance of door that are greater than 6 mm would allow intrusion of rodents.</p> 	<ul style="list-style-type: none"> <li>● Installing a 20 gauge metal ‘kicking-plate’ of at least 300 mm high on the outside of the door with a maximum threshold clearance of 6 mm. A similar plate should be fixed to the door frames to form a continuous band of metal.</li> </ul>
15	<p>Void underneath raised container office provides rodents with harbourages while food refuse accumulated in the void provides food sources for rodents.</p> 	<ul style="list-style-type: none"> <li>● Fitting a 20 gauge metal plate to seal up the void to prevent access of rodents.</li> </ul>



<p>16</p>	<p>Improper storage of works materials and waste provides hiding places for rodent.</p> 	<ul style="list-style-type: none"> <li>● Works materials and waste should be properly stored in rodent-proofed places. Hoarding boards should be closely set to one another to avoid leaving any gap greater than 6 mm.</li> <li>● Works materials and waste should not be stored near flower beds or refuse collection facilities.</li> <li>● Works materials and waste should be removed or relocated regularly to prevent harbourage of rodent.</li> </ul>
<p>17</p>	<p>Refuse collection bins close to flower bed or vegetation allow rodents to access food easily.</p> 	<ul style="list-style-type: none"> <li>● Refuse collection bins should be kept at a minimal number and set at considerable distance from flower beds, vegetation and other potential rodent harbouraging places, e.g. switch rooms.</li> </ul>
<p>18</p>	<p>Tree stump may provide an ideal harbourage for rodent.</p> 	<ul style="list-style-type: none"> <li>● Tree stump should be removed completely soonest possible.</li> <li>● If immediate removal of the stump is impossible, the hole in the stump should be filled with small boulders or other suitable rodent-proof material as a temporary measure.</li> </ul>