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# 利用红外相机调查北京松山国家级自然保护区的野生动物物种

## Using infra-red cameras to survey wildlife in Beijing Songshan National Nature Reserve

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| 作者 | 单位 | E-mail |
|---|---|---|
| 刘芳 | 中国林业科学研究院森林生态环境与保护研究所, 国家林业局森林生态环境重点实验室, 北京 100091 | |
| 李迪强 | 中国林业科学研究院森林生态环境与保护研究所, 国家林业局森林生态环境重点实验室, 北京 100091 | lidq@caf.ac.cn |
| 吴记贵 | 北京市松山国家级自然保护区, 北京 102115 | |



**中文摘要**:

红外相机是监测野生动物的有效工具,目前广泛用于兽类资源调查以及动物损害、鸟巢生态学、种群评估、行为生态学等研究领域。为了调查北京松山国家级自然保护区的野生动物,于2010年5-12月采用红外相机进行系统调查,在210个位点放置了红外相机,每台相机在每个地点上放置一个月。研究期间共拍摄到照片2203张,其中73%为兽类,12%为鸟类,13%为工作人员,2%为其它人员。共鉴定出17种兽类(分属5目10科)以及36种鸟类(分属5目17科)。兽类中拍摄率最高的前5种动物分别是岩松鼠(*Sciurotamias davidianus*)、猪獾(*Arctonyx collaris*)、豹猫(*Prionailurus bengalensis*)、狗獾(*Meles meles*)和貉(*Nyctereutes procyonoides*),鸟类中拍摄率最高的前5种动物分别是紫啸鸫(*Myophonus caeruleus*)、雉鸡(*Phasianus colchicus*)、松鸦(*Garrulus glandarius*)、勺鸡(*Pucrasia macrolopha*)和宝兴歌鸫(*Turdus mupinensis*)。红外相机在不同海拔、不同植被类型以及不同月份所拍摄动物的拍摄率不同:在1000-1400m的海拔段,拍摄率显著高于低海拔(600-1000m)以及中高海拔(1400-1700m);在阔叶林中的拍摄率最高,在针叶林、针阔混交林和灌丛中的拍摄率相似;秋季(8-10月)拍摄率较高,夏季(6-7月)次之,冬季(11-12月)最低。红外相机拍摄到的累积物种数与相机放置的时间成上升曲线,但曲线的增长速率逐渐变缓。研究表明红外相机适合于调查和监测大中型兽类和部分鸟类,所采集的动物数据以及拍摄的图片和视频资料将为保护区的监测、科研和环境教育提供资料。讨论了应用红外相机调查和监测野生动物的技术细节。

English Summary:

Understanding and monitoring the wildlife population and its dynamics is the major task for nature reserves. Infra-red camera is a useful tool for monitoring animals and has been widely used in mammal resource survey, wildlife damage, nest ecology, population estimates, behavioral ecology, etc. To survey and monitor the wildlife resources of Beijing Songshan National Nature Reserve, we set infra-red cameras in 210 sites, with each site maintained for one month, from May to December, 2010. The cameras totally took 2203 photos, among which 73% were mammals, 12% were birds, 13% were staff members, and 2% were other people. We have identified 17 species of mammals (belong to 5 order and 10 family) and 36 species of birds (belong to 5 order and 17 family). The most common mammals occurred on photos included Rock squirrel(*Sciurotamias davidianus*)、Hog badger(*Arctonyx collaris*)、Lerpord cat(*Prionailurus bengalensis*)、the European badger(*Meles meles*)and raccoon dog(*Nyctereutes procyonoides*), and the most common birds were the Blue Whistling-thrush (*Myophonus caeruleus*)、 the Common Pheasant (*Phasianus colchicus*)、Euroasian Jay(*Garrulus glandarius*)、the Koklass Pheasant(*Pucrasia macrolopha*)and the Chinese Thrush(*Turdus mupinensis*). The photographic rates (PR) varied at different elevation, habitats and seasons: PR was significantly higher in elevation of 1000 - 1400m than that of 600 - 1000m and 1400 - 1700m; PR in broad-leaf forest was the largest, and was similar low in conifer, mixed conifer and broad-leaf forest and shrub; PR in autumn (August to October) was the highest, while in summer (June to July) was low, and in winter (November to December) was the lowest. The cumulative species number taken by infra-red cameras increased with camera days, but the trend slowed down. Infra-red cameras are more suitable to survey and monitor medium-large mammals and some birds and the photos and video of wildlife which are taken by infra-red cameras can be served for the monitoring, research, and environmental education of nature reserves. At the last part of the paper, we discussed the details of techniques on using infra-red cameras to survey and monitor biodiversity.

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