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The Old School, Brewhouse Hill, Wheathampstead,  
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www.ufaw.org.uk

Animal Welfare 2017, 26: 281-292  
ISSN 0962-7286  
doi: 10.7120/09627286.26.3.281

## ***Canine trap-neuter-return: a critical review of potential welfare issues***

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### **Abstract**

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*Free-roaming dogs (Canis familiaris) may be viewed positively or negatively within their communities. Negative aspects of the presence of free-roaming dogs include noise, fouling, disease transmission, dog-bite injuries, road traffic accidents and potential hybridisation with endangered wildlife species. Due to these concerns, control of free-roaming dog populations may be required. Surgical sterilisation of free-roaming dogs through the implementation of 'trap-neuter-return' (TNR), initiatives is often recommended as a welfare-friendly method of dog population control. Welfare assessments in TNR are often absent. Where they do exist they may rely upon proxy assessment, or be limited to relatively few measures of health status. As a result, there is a paucity of literature regarding the welfare impacts of surgical control of canine populations despite this practice often being promoted for animal welfare reasons. We outline the primary welfare issues associated with surgical population control of free-roaming dogs, suggest steps that may be taken to mitigate these problems and discuss barriers to improving dog welfare in TNR. Many opportunities for welfare problems exist within the spectrum of surgical TNR initiatives. We recommend that further research is needed to set appropriate standards for surgical approaches to free-roaming dog population management.*

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**Keywords:** *animal birth control, animal welfare, assessment, dog population management, dogs, trap-neuter-return*