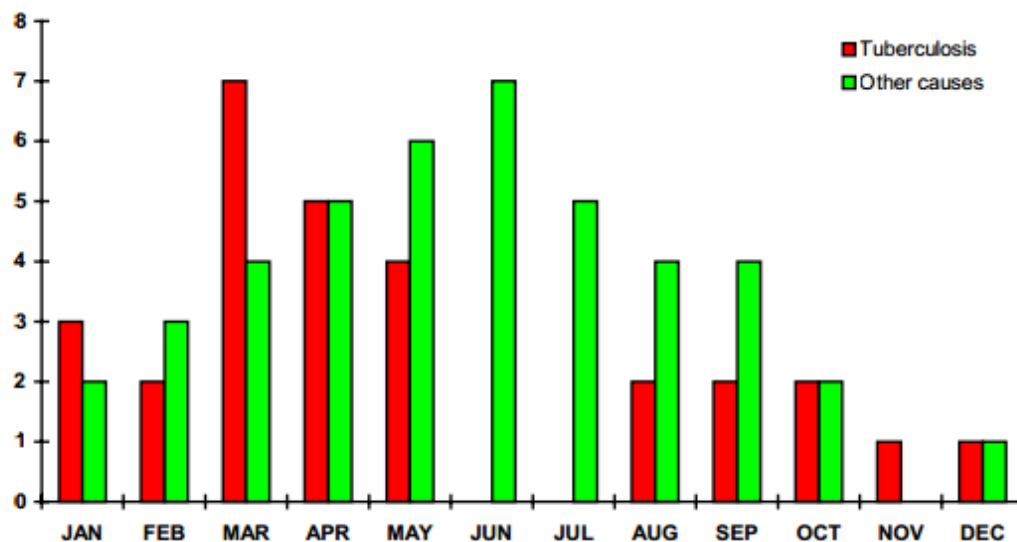


## Seasonal occurrence of death due to TB in badgers

Spring is the zenith of the badger's year with births in south west England occurring mainly in late February but extending from mid January through to mid March, followed by the start of the main mating season. Territorial demarcation activity is maximal at this time peaking in February/March with a lesser secondary peak in late summer (Neal and Cheeseman, 1996). Cases of tuberculous bite wounding were found to mirror this pattern of territorial activity (Gallagher and Nelson, 1979). It is thus not unexpected that a chronic disease such as tuberculosis may fulminate in springtime. This seems apparent from a study of causes of natural deaths (see figure 4). Deaths due to tuberculosis peaked in spring and late summer showing a different pattern to those of other causes which, in ranked order of frequency were, non specific bite wound infections(11), starvation(10), pneumonia(3), enteritis(2), arteriosclerosis(2), metritis(1), nephritis(1), lymphosarcoma(1), polyarthritis(1) and undiagnosed causes (Gallagher, 1998). Whilst advanced arteriosclerosis lesions appeared the cause of death in 2 cases this condition was observed as a possible exacerbating cause in a number of other conditions (Gallagher and Nelson, 1979). Tuberculous bite wound cases contribute a large component of the diseased males seen in the spring but when these were disregarded there was still a greater tendency for disease in males although it was then not statistically significant probably due to reduced sample size (Gallagher, 1998).

**Figure 4 Seasonal occurrence of deaths due to tuberculosis and other causes of 72 badgers found dead from 1973 - 1976**



*\* Two animals with advanced tuberculosis killed in extremis are also included*

Bite wounding appears a common means of transmission of infection between social groups. Emigration of infected individuals is also likely to spread infection. Within social groups, because of the gregarious nature of badgers, aerosol transmission from close contact during communal sleeping and grooming, would be expected to result in a high level of intra-group infection. Pseudo-vertical transmission is also considered to be an important mode of transmission from sow to cubs (Cheeseman et al., 1981; Nolan and Wilesmith, 1994). But this may be variable.

Nolan (1991) found a higher prevalence of infection in cubs than in adults in a series of 177 badgers in which 52 (39.1%) of the adults were infected and 20 (45.5%) of the cubs were so. Whereas Gallagher (1998), examined 757 badgers and found infection in only 11 (13.4%) of the cubs but 135 (20%) of the adults. Considerable variation is probably to be expected as was found in an investigation by Cheeseman et al. (1981) of 4 sites, comprising 24 social groups, 11 of which were infected. From these 18 infected groups, cubs were found in 7 and in 3 of these the cubs were infected. But when a sow with cubs is diseased it is likely that all the offspring become infected and this did appear to be so. In the 3 groups 3 out of 3, 6 out of 7 and 4 out of 6 cubs were infected.

## Reference

Tuberculosis in badgers; a review of the disease and its significance for other animals. J.Gallagher and R.S. Clifton-Hadley. 2000.