

Intro- Availability of information.

### **ERM Baseline Assessment Study**

To avoid perceptions of bias the soil sampling locations should have been based on a grid. Failing this the sites should have been determined by the locations of shooting positions and shotgun pellet fallout areas associated with the positions. The ERM study does not provide the locations of shooting positions or any indication of fallout areas.

As indicated on the map of the property (Attachment 1) a shotgun fired from a central point and in any direction would result in most of the fallout landing on the property within the first circle that has a radius of 210 metres. If shooting toward the property boundary, moving 50 metres in any direction would result in more pellets landing within the second circle with a larger area outside the property. Moving 100 metres in any direction would result in a significant proportion of the fall landing outside the property boundary.

The two sampling sites (SS 23 & and SS 43) indicated on the map are suggested to be in 'Impact zones/ fall areas'. Site 23 is in the Murrah Flora reserve and is one of two sites where clay target fragments were reported. If the shooting position was 50 metres from this location and within the property the fallout would extend at least 130 metres into the flora reserve.

The ERM report suggests initial shooting was “ . . . mostly along a ridge on the southern boundary of the club's land and outside the present property boundary. The club purchased its land in 2012 and has since directed its shooting activities so that lead shot does not enter adjacent land. No shooting has been undertaken within the property boundary adjacent to the north-eastern and eastern boundaries.”

Site 43 is where soil lead is reported as being 1000 mg/kg, more than 3 times the accepted limit (300 mg/kg) for lead contamination. A shooting position 155 metres to the west would result in lead deposition at site 43. However there is a ridge-line between the two points. If shooting from this position was to the west all of the fallout would land in the Murrah Flora reserve.

### **Pollution of soil, water and air**

The rate at which shotgun pellets degrade in the environment depends on various soil properties and only a small proportion is likely to have entered the soil since 2012 (Attachment 2). After 9 years at the new site it is more likely that most of the pellets would be found relatively intact in the surface litter (Attachment 3). The ERM study employed soil sampling at a depth of 10-20 centimetres rather than on the surface.

Four of the six water samples are below the southern property boundary in Arnolds gully, where the water is described as turbid and downstream in the Murrah river. These were found to have very high Electrical Conductivity ( $\mu\text{s}/\text{cm}$ ) levels, three of them being well above drinking water standards and this is mostly likely to be a result of sub-soil dispersion. Sub-soil dispersion is associated with long term broad scale land degradation (Attachment 4) and probably made worse by the clearing on the property. Two of the water samples are indicated as having lead at the maximum level for the protection of fresh water and two were twice that level.

When the lead does break down and it reaches the dispersing sub-soil, the movement via the ground water is likely be rapid, irreversible and most likely to heavily pollute the majority of the

downstream environment. About a third of the property is within the Coastal Environment Area map under the NSW SEPP- Coastal Management.

### **Environmental receptors**

Environmental receptors not considered in the ERM study include the animals within the area of lead fallout, polluted water and the noise. According to council staff reports the flora and fauna report (August 1997) indicates there are no koala feed trees on the property listed in SEPP 44 and 'the impact of intermittent noise is difficult to assess'.

SEPP 44 and the current Koala SEPP 2020 both suggest Forest red gum is the preferred koala feed tree in the shire but there is no evidence of koalas using this species for over 100 years. The first report on local koala feed trees was also released in August 1997 (Attachment 5). It found the main tree species being used by koalas in the area are Mountain grey gum (*E. cypellocarpa*) and Woollybutt (*E. longifolia*). The property has the same forest ecosystems and is on the Murrah soil landscape that the few remaining koalas are constrained to, between the Bega and Bermagui rivers.

These species are referred to in the review of NSW koala feed trees (Attachment 6) and are likely to be incorporated into the revised Koala SEPP, that has been delayed, apparently due to the probable federal endangered listing for the species.

Lead is frequently taken up by plants and lead pellets shot into a tree, as indicated in the photo (Attachment 7) taken by a local resident on the southern boundary of the property, make this outcome inevitable. Outside of lead fall areas the impact of noise, given koalas sleep during the day, is likely to be a significant factor behind the reason there is no apparent interaction between koalas to the south and north of the Murrah river (Attachment 8). Combined with the other threats, this situation increases the likelihood koalas will be pushed to extinction.

Should Councillors prefer not to accept this responsibility, the only option is to follow the lead of the Surf Coast Shire Council (Attachment 9) and require the gun club to cease its activities, undertake a thorough assessment of the old and new sites and develop a plan to remediate them.

Robert Bertram  
20/9/2021