The San Francisco Garter Snake (Thamnophis sirtalis arenosus) is a small species native to the San Francisco Bay Area, characterized by its long, slender body and distinctive markings. It is often found in wetland and grassland habitats. The snake feeds on small invertebrates and is known for its attractive colors and patterns.

### 2. Thermal covers for heat retention on steam-treated sites

Materials for insulating the soil surface to improve heat retention and minimize soil cooling include:

- **Aluminum Foil:** Provides good heat retention for short periods.
- **Denim:** Effective for moderate heat retention over longer periods.
- **Radiant Barrier:** Helps to retain heat in the soil surface layers.

The covers are placed directly on the soil surface after steaming, and their effectiveness is measured by recording the soil temperature over time.

### 3. Grid tests at WSU Puyallup

A series of grid tests were conducted to assess the effectiveness of steam treatment on soil contamination. The tests were performed using a steam auger, which was placed in a set of five holes. The water was allowed to drain from the holes, and the soil was then replaced with sterilized soil. The temperatures were measured at several depths, and the results showed that steam treatment effectively killed the contaminant organisms.

### Recommendations for steam treatment

- **Vertical steaming is less optimal under high soil moisture at the AGS site.** It is recommended to conduct experiments to assess the optimal conditions for steam treatment, including soil moisture levels and moisture content above 0°C.
- **The injector method heats the surface layers of the soil better than using the steam auger, and is also more practical than the auger from a logistics standpoint.** The injector is more efficient and allows for better control over the steam application.
- **For best results, the soil surface should be aged to a depth of 24" before steam treatment.** This helps to distribute the steam evenly and improve heat retention.
- **A thermal cover placed over the treated site after steam treatment will reduce cooling of the soil surface and prolong the duration of the treatment.** Additional measures to improve the structure before replanting, such as mixing with an organic additive, may improve plant growth and reduce soilborne diseases like Botrytis cinerea.