The Safe Way to Map Military Firing Ranges

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Firing ranges, or “impact areas” as they are termed by the U.S. Army, make up about 50,000 acres of the Fort Hood Military Reservation in central Texas. Fort Hood is the largest military installation in the free world and since the early 1940’s these impact areas have been shelled with everything from small arms to rockets. The question facing the soil survey staff was how to map this part of Coryell County without endangering life or limb.

Two basic problems were encountered. First, the firing ranges are used almost every day of the year. Second, thousands of dangerous shell, mortar and rocket duds lie on or near the surface.

The small arms ranges were mapped in a conventional way—driving over the land in a pickup. But the duds made the larger impact areas too dangerous for driving. So instead, it was decided to map from the air by helicopter (Fig. 1). Fort Hood officials graciously consented to provide helicopter flying time and made the necessary arrangements.

The impact areas are normally closed to firing for 1 hour after dawn to allow troops time to prepare firing exercises for the day. This was the time selected for mapping soils.

First, we mapped the surrounding soils and the small arms ranges so that we could more readily identify the soils in the larger impact areas. This is a hilly portion of the Grand Prairie Land Resource Area. The soils are mainly Mollisols that are loamy and shallow to limestone bedrock on the hills with a few deep soils in narrow valleys and along floodplains.

Fig. 1. The Soil Survey Staff were flown by military personnel in this helicopter to map Fort Hood's impact areas.