

Animal visitation frequency at EA surface detectors, or, How soon will that cable get munched?

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This is intended to be a very short note detailing some quick measurements of the frequency of animal visits to a pair of Engineering Array water tanks. We installed a pair of solar-blind passive infrared (PIR) detectors connected to HOBO event data loggers at each of two tanks (Flavia and Miranda). The two PIRs were set with trigger thresholds to approximate goats (in the low gain channel) and rats (in the high gain channel). These thresholds were set through calibrations using people (low gain) and birds and hands & birds (high gain). Series of trigger events were treated as single events but the total time of animal-tank interactions were also noted. (High gain triggers in coincidence with low gain ones are listed as low gain only.) The PIR data loggers were also setup just off the Los Leones road (Rte. 184) about 4 km past the fluorescence site, and off the La Junta road about 6 km from Rte. 40, for three days before EA site access scheduling worked out to install the detectors there.

The range of detection for each mode is about 20m in the open. Light brush along La Junta road may have diminished the range somewhat. The detectors will be modified for shorter range operation and may be reinstalled during May 2001.

The installation was performed and data was collected for four days at each of the two sites. The total number of triggers (subtracting out periods of time when physicists were present (times in which, presumably, the goat and rat events were “naturally” suppressed)) were:

	Low gain (e.g., goats/cows)	High gain (e.g., rats/birds)
Flavia	6 events / 4 days	63 events / 4 days
Miranda	3 events / 4 days	78 events / 4 days
Los Leones road	3 events / 3 days	52 events / 3 days
La Junta road	7 events / 3 days	42 events / 3 days

Which gives us an approximate large animal-tank interaction rate of 1-1.5 events/day and a small animal-tank interaction rate of 15-20 events/day for a fixed location. Most of the high gain events were nocturnal while all of the low gain events were daytime events. We also noted that the local animals do not appear to take a siesta, though they are more active in general during the morning.

It is interesting to note that the animal rates are close to constant at the different locations—this is especially notable because of the animal fences. It’s not clear what other conclusions can be reached, but the data are here.