




## Attachment 6: Comparison table of three motion-sensor cameras trialled

Three models of motion-sensor cameras were trialled as part of the Hunter & Central Coast Regional Environmental Management Strategy (HCCREMS) Regional Illegal Dumping Deterrence Project. The table below includes information and observations on the three cameras trialled. This information is presented as a guide to assist officers with camera selection and issues to be aware of that may vary slightly between different models and not presented as a rigorous comparison between models.

Camera model	Bushnell Trophy Cam	TrackSnap Digital Eye	Predator Evolution XR
<b>Pictures of camera</b>			
<b>Initial recommendation and results from use in other areas</b>	The Sydney Catchment Authority recommended this model. They have used the camera to obtain images of illegal activities in water protection areas.	Townsville Council recommended this model due to its large file size.	Ipswich Council recommended this camera. They have reportedly used it to obtain a number of prosecutions.
<b>Indicative cost (incl. GST) and purchasing outlets</b>	\$495 - \$550 <a href="http://www.archeryshop.com.au/p/891192/bushnell-trophy-cam-5-mega-pixel.html">http://www.archeryshop.com.au/p/891192/bushnell-trophy-cam-5-mega-pixel.html</a>	\$950 - \$1100 <a href="http://www.tracksnap.com/index.html">http://www.tracksnap.com/index.html</a>	\$995 - \$1350 <a href="http://www.berettaaustralia.com.au/predator/predator-evolution-xr.html">http://www.berettaaustralia.com.au/predator/predator-evolution-xr.html</a> Retail Outlets such as Thornton Hunting & Outdoors, Mannings Sports Gosford

<b>Accessories</b>	Standard belt provided to fix to pole / tree (no security) Need to purchase separately: <ul style="list-style-type: none"> <li>- SD card;</li> <li>- SD card reader also needs to be purchased to avoid the need to remove camera to plug into computer;</li> <li>- Batteries (4AA).</li> </ul>	4G memory Stick, Camouflage casing and locking cable, 9V battery included	Universal mount extra cost. Comes with limited memory. Need to purchase separately: <ul style="list-style-type: none"> <li>- Memory stick;</li> <li>- 10 AA batteries.</li> </ul>
<b>Resolution (MegaPixels)</b>	Up to 5MP	Up to 12MP	Up to 2MP
<b>Optimum distance for number plate</b>	Photos - <10m Video - <5m	Photos <25m Video <5m	Video 5-10m Photos - untested
<b>Activation time (between triggering motion and taking photo)</b>	Said to be 1sec Field tests indicate activation occurs when cars are about 15m past (at 20kmph)	Said to be <1sec Field test indicate activation occurs when cars are about 15m past (at 20kmph)	Tests at sites indicate activation occurs when cars are about 5-10m past (at 10-20kmph)
<b>Instruction manual &amp; general user friendliness</b>	Great instructions with trouble shooting section. Generally easy to use.	Came with a link to two online manuals - one for the sensor device and one for the Sony camera. Manuals difficult to use. Tiny switches for settings are not user-friendly - require reference to manual frequently. To replace battery in camera you need to unclip which is a bit difficult.	Did not come with instructions – supplier sent poor quality scanned version of manual on request Easy to use – buttons and screen on camera with simple menu system
<b>Night use</b>	Since this camera uses red LED for night vision you may be able to see the red light if you are looking directly at camera		GCC found successive shots at night time don't work as the flash needs time to recharge. Most of the time headlights are too bright to allow details of the vehicle to be seen. LMCC had one successful shot of number plate at night – led to admission and fine
<b>Anti Theft Features</b>	Small unit easy to hide.	Lockable cable for attaching to trees/ poles Camouflage casing	Camouflage casing Pin number required to access camera information and settings – so it will be effectively

			<p>useless to thieves</p> <p>Anti theft number (in UK) – can be called (if product was registered by original owner) to see if camera has been ‘turned in’ or if thief has tried to re-register camera or change pin number</p>
<b>Battery life</b>	<p>Said to be several months (180 days)</p> <p>Field tests show batteries last anywhere from a week to 4 months (the latter when taking up to 3000 photos a week but using 4 lithium batteries).</p>	<p>Said to be 370 shots</p> <p>Field tests show batteries seem to last a highly variable amount of time (even when similar numbers of photos are being taken) and was often flat after one week of use.</p>	<p>Depends on usage and settings. Tests at one site suggest around two weeks. Tests at another site suggest batteries can last a couple of months.</p>

**Example images**

Photo:



Bushnell 086 \*P ● 09-14-2010 11:59

Photo – zoomed in:



Photo:



Photo – zoomed in:



Screen shot of video:



Video screen shot – zoomed in:



<p><b>Summary of trial results (for further information see Section 4.7)</b></p>	<p>Trialled at Kiwarrak Deterrence Site with surveillance signage (Greater Taree City Council) – Dumping levels were reduced over the post-installation monitoring period (more than halved). Three incidents did still occur but no evidence was captured by the camera (the camera was placed in locations away from where these incidents occurred and there are multiple access points to the site). The camera captured other vehicles and people with good resolution.</p>	<p>Trialled at Harrington Deterrence Site with surveillance signage (GTCC) – Dumping levels did not reduce over the trial period (after camera and sign installed). No evidence of incidents was captured by the camera due to the battery going flat before the incidents occurred. The camera was located on a reasonably busy road (beach access), so a large number of photos taken, hence the draining of battery power. Images that were captured were of good quality.</p>	<p>Trialled at Mt Ettalong Deterrence Site &amp; Katandra Deterrence Site (Gosford City Council) – Dumping decreased at both of sites after the installation of the camera and signage. At the Mt Ettalong Site two incidents occurred while the camera was in place but it did not capture evidence on either – in one case due to batteries being flat and in another case the photo ‘triggering’ seemed to miss the incident/ potential offenders (there were simply no relevant photos). When this camera was moved to Katandra (with a sign) no incidents occurred for 2 months but then the camera was stolen.</p>
<p><b>User comments</b></p>	<p>GTCC - Date stamp on images useful for admissibility in court. Takes time to scroll through images but this isn't necessary if there is no dumping. The photo setting was more useful than the video setting as the resolution of images is better.  SCA - Installed signs (surveillance is used in the area) at all access ways, which enables the cameras to be moved throughout site. Never had any problems with admissibility in Court - need to follow Chain of Custody procedure as per other evidence to show who has had access to the cameras and the images.  LMCC – Small unit is easy to conceal. Camera seems to trigger a lot even on lowest sensitivity setting –in one instance, after 4 days, 4000 photos were taken and batteries needed to be changed. NB GTCC found sensitivity suitable and batteries lasted over 4 months.</p>	<p>GTCC – Initially fiddly but easy to use once familiar with setup. Sturdy and secure due to lockable cable. Some inconsistency in triggering encountered and batteries often needed changing weekly (especially the internal Sony camera battery).</p>	<p>GCC- Labour intensive and difficult to obtain consistent quality images. Triggering problems and the reduced quality of images from sun glare on number plates was exacerbated by the placement of the camera at 5m height – a height of 1m is recommended for best outputs.  LMCC- Camera very easy to use – all touch screen and can see images on camera. Only had to change battery twice over 4 months of use. Camera stolen after 4 months but 2 fines obtained during this period (through admissions of offenders tracked down by number plate evidence from camera).</p>