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RCMP “H” Division & Unmanned Aerial Systems

By Darrell Harvey

On the 8th of April, a chilly early spring evening, Superintendent John Ferguson and Constable Mark Skinner of RCMP “H” Division hosted members of RUSI(NS) at the RCMP’s Divisional Headquarters (HQ) on Garland Avenue in Dartmouth, Halifax. Once again “H” Division proved to be great hosts by providing a very interesting, informative and engaging evening, in addition to offering most welcoming hospitality.

Over the years the RCMP have demonstrated their willingness to talk about operational subjects that have controversial dimensions. The theme of this evening’s presentation was no exception as they discussed their use of aerial “drones” – which as we quickly learned are properly referred to as Unmanned Aerial Systems or by the initialism “UAS.”



photo 1: Cst. Skinner briefing on the UAS
photo credit: C. Darlington

The evening began in the parking lot of the Divisional HQ with a flight demonstration put on by Constable (Cst.) Skinner, one of the Division’s UAS pilot-operators. Cst. Skinner brought his entire UAS out to the parking lot in a relatively small transit case. Within a matter of minutes he had his Draganflyer UAS assembled and hovering over our heads.

The Draganflyer is a small civilian pattern remotely operated quadcopter (four-rotor) aircraft produced by Draganfly Innovations Incorporated, a Canadian company based out of Saskatoon. The Draganflyer weighs less than two kilograms, and with all its ground control equipment can fold up to fit in a small case. The Draganflyer can reach altitudes of 1000 feet or more and is capable of speeds up to five feet per second in any direction. It can be fitted with a 20 mega-pixel optical camera or a forward looking infrared (FLIR) video camera, and is able to transmit images to its operator in real-time via a Wi-Fi encrypted downlink.

“H” Division has had their Draganflyer since 2013, and has found ever increasing uses for it. The small size and highly portable nature of the UAS make it ideal for providing an aerial perspective of operational areas in support of police investigations and emergency response team or ground search and rescue (SAR) operations.



photo 2: RUSI(NS) members as seen from the UAS
photo credit: Cst. M. Skinner

After launching his UAS, Cst. Skinner demonstrated the stable and easy-to-fly characteristics of the craft while flying it over the heads of the RUSI(NS) attendees (see photo 2) and over the immediate area.

“H” Division have successfully used the Draganflyer in several high-profile cases of late. They have used their UAS to produce aerial documentation of crime and crash scenes, including the recent airplane crash at the Halifax Stanfield International Airport, and in the Phillips hazardous materials case that began in the Halifax area. In each case the UAS was able to document the scene from a perspective that previously could only have been obtained from a helicopter.

Over the last several years the frequency and types of uses for UAS have exploded. This has been made possible with lowering unit costs and the blending of rapidly maturing technologies, especially developments in micro-control systems, global positioning systems (GPS) and rechargeable battery technologies. Hardly a day goes by that someone does not think of a new way to use these nimble and relatively easy-to-fly craft. Their uses include sport flying, commercial, industrial, military, and law enforcement.

Law enforcement agencies were quick to see the potential uses of UAS. In 2013, “H” Division, after completing a rigorous procurement process, purchased five Draganflyer systems. These are definitely not your not your “hobby store” quadcopter. Each system cost “H” Division approximately \$25,000, plus training and ongoing operational costs.

Four of the “H” Division UAS are deployed to RCMP Traffic Services Units across Nova Scotia and are frequently used to collect photographic information in support of their day-to-day investigations. Other RCMP Divisions have also acquired UAS. The map of Canada (figure 1) shows the distribution of

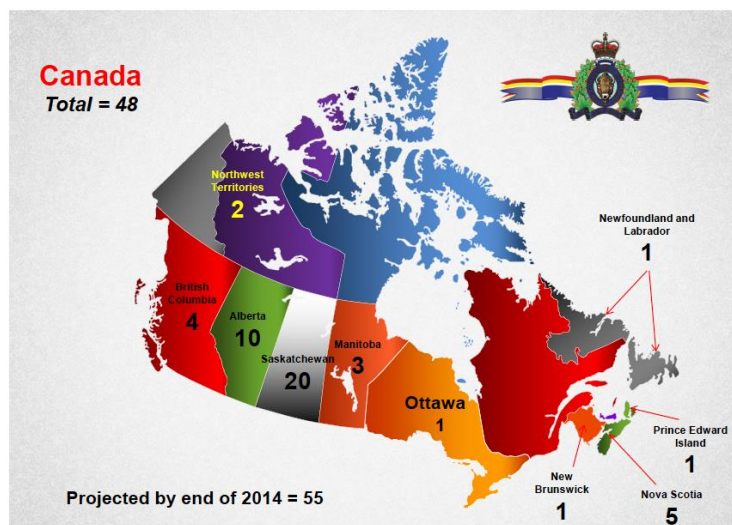


figure 1: RCMP UAS Utilization (2014)

RCMP UAS across Canada. Not all the RCMP's UAS are Draganflyers – the RCMP fleet (nationally) contains craft from at least two other manufacturers.

There are numerous misconceptions surrounding the use of UAS. However, through his flight demonstration, formal presentation and the Q&A that followed, Cst. Skinner was able to provide accurate information about UAS to the RUSI(NS) members. Cst. Skinner's presentation included the following information:

- The Draganflyer batteries can sustain flight for a maximum of 20 minutes.
- For all commercial or industrial purposes, including law enforcement, UAS use is strictly regulated by Transport Canada through the issuance of Special Flight Operations Certificates (SFOC).
- The RCMP have a one year SFOC from Transport Canada with specific conditions attached:
 - The UAS must be operated within the visual sight of the operator.
 - Transport Canada limits flight altitudes to a maximum of 500 feet.
 - Transport Canada prohibits UAS flights over people not involved in the operation.
 - UAS night flying is permitted so long as 1000 feet visibility available.
- When operating a UAS in controlled airspace, the operator would liaise with the responsible air traffic control centre.
- The RCMP has national and divisional policies governing the deployment and operation of their UAS.
- Under no circumstances are UAS used for surveillance purposes without specific judicial authorization.
- The RCMP's Draganflyer has the prestigious honour of being on display at the Smithsonian National Air and Space Museum in Washington DC.

The Draganflyer has proven very successful, having met or exceeded all of the "H" Division's identified requirements. RCMP Traffic Services, the unit to which Cst. Skinner belongs, is responsible for the use of "H" Division's UAS. In fact, 80% of the use of the UAS is for RCMP Traffic Services where the systems are used to collect photographic evidence supporting collision reconstruction investigations.

In addition to supporting the traffic services mandate, the Draganflyer is also used for active threat scenarios (e.g., barricaded person), major crime investigations, and SAR operations. The UAS' FLIR video camera can be useful during specific SAR operations with its ability to identify heat signatures produced by people. Searchers can also use the UAS, with its onboard coloured strobe lights, as an airborne "beacon" to help the lost person identify their location.

The number of uses for UAS is increasing every day. Recently the large retailer Amazon was in the news as they are exploring the opportunity to have UAS deliver small items directly to the purchaser's doorstep in lieu of using traditional postal delivery services. There is also an ever-increasing use of UAS for industrial purposes where it is cheaper, more expedient and even safer to use a UAS rather than a helicopter.



photo 3: UAS in flight

photo credit: RCMP “H” Division

UAS have also been in the news where concerns were raised around their impact on privacy and security. The reality is that the capabilities and uses of these systems are evolving so quickly that governments are challenged to develop suitable regulations and civil/criminal laws governing their use. UAS oversight and permissible operations vary between countries, with Canada seeming to take a reasonable middle-of-the-road approach.

A lively discussion was had during the Q&A session after Cst. Skinner’s presentation on what the implications UAS use brings forward for privacy and information collection. The RCMP has national and divisional policy governing UAS use and the information collected with them. A comment likened the RCMP UAS to nothing more than a “really tall ladder.” The information the RCMP collect from their UAS is retained on operational case files just as with their other investigative information, and is managed over the information life cycle (collection, use, retention, and lastly disposal).

The evening wrapped up with the Institute’s Vice-President Colin Darlington thanking Superintendent Ferguson for the RCMP once again hosting RUSI(NS) members in such fine fashion, and to Constable Skinner for his most informative presentation on a subject that we will surely see much more of in the years ahead.

Darrell Harvey is a retired civilian member senior officer of the RCMP with 27 years service with the Force. He has extensive experience with forensics (firearms) and policing corporate management areas, as well as small arms range design and operations. Since retiring from the RCMP, along with a former RCMP senior officer, he operates a public safety consulting business – Twin Birch Consulting Incorporated. This work is the sole opinion of the author and does not necessarily represent the views of the Royal Canadian Mounted Police or the Royal United Services Institute of Nova Scotia.
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