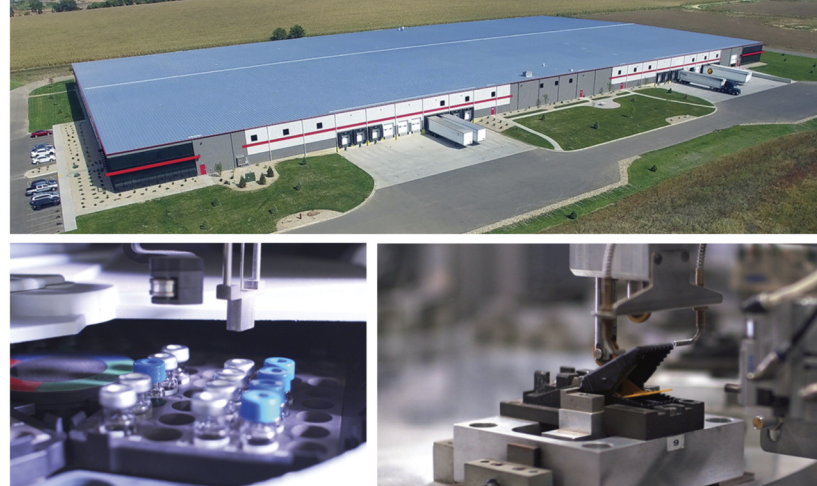




This year, Bell Laboratories will be celebrating its 45th year in business. In the coming Bell Report issues, we will be looking back at our history and growth along the way.

**SPOTLIGHT ON:
CONSTRUCTION**

The biggest change at Bell since we looked back over the past five years has been the construction of the new warehouse and manufacturing facilities on Stack Drive. This expansion of our manufacturing, storage and shipping areas ensure we get the best products out to our customers on time, every time.



THE BELL REPORT

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Left: Drone hovers just off the ground on North Seymour Island. Above: Technicians filling up drones bait hopper

The Latest Technology in the War Against Rodents:

DRONES

We have seen how much damage rats can do to our homes, buildings, and businesses, but that pales in comparison to the amount of damage rats can do to an ecosystem. Rats were introduced to the Galapagos Islands in the 16th or 17th century by whalers and pirates. In 2012, Bell worked with Island Conservation on a baiting project for the island of Pinzón, and the island was eventually declared rat free at the end of 2014. North Seymour Island is now another area where rats have flourished due to a lack of natural predators around to combat their population. Located off the coast of Ecuador and part of the Galapagos chain, North Seymour Island is the nesting site for rare seabirds, such as frigate birds and swallow-tailed gulls, whose eggs and hatchlings make easy meals for rats. Islands

like North Seymour have extremely delicate ecosystems—fish, insects, cacti, and other plants serve as food for seabirds, and nitrogen-rich bird droppings serve as a vital nutrient for coral reefs. Introducing even one predatory mammal, especially one as successful as rats, to an island like North Seymour, can decrease the bird population and devastate the entire ecosystem. In 2007, conservationists succeeded in ridding North Seymour Island of rats, but monitoring activities in 2018 determined that the island was infested by black and brown rats, once again. When rats re-infested North Seymour Island, a state of emergency was declared, and Island Conservation and their affiliates once again stepped in to declare war on the rats, this time using drones.

Continued on page 2



Above: Technician remote monitoring the drone



Above: Drone takes off from a ship off the coast of North Seymour Island



Workers on foot dispensing bait among the rocks of North Seymour Island



Above: Bait scattered on the rocky landscape of the Galapagos islands. Below: Norway rat finishing up a meal on North Seymour Island



that works in wet environments and lasts a few weeks.

Typically in island conservation projects, bait is spread by hand, or through the use of helicopters. While helicoptering in bait is impressive and sometimes the only option, helicopters can also be difficult to work with; they need specialized pilots and bait spray buckets. In addition to this, they often need to be shipped to the location and the entire process can get expensive quickly. Drones are far less expensive, and they have the ability to fly autonomously, along predetermined flight patterns, while dispensing bait with extreme precision. Precise bait dispersion is a key reason why drones could be the weapon of choice in future island conservation projects. Placing bait into extremely precise locations reduces waste and limits exposure to non-toxic animals such as birds and reptiles. While the baits were formulated specifically to not appeal to birds or reptiles, every precaution is taken to assure safe bait application. Three drones were used for the eradication project on North Seymour Island—each drone took several 15 minute trips, dropping 44lbs (20kg) of rodenticide on each trip. After 52% of the island was baited with drones, it took more than 30 park rangers to spread bait to the rest of the island, by hand.

In preparation for the eradication, large bait dispensers were 3-D printed to be compatible with the drones, and Bell produced and shipped over 6,600lbs (3,000kg) of rodenticide. When producing bait that is going to be used specifically for island conservation, Bell has formulas to accommodate any baiting environment. Bell typically uses wet formula or dry formula for conservation projects. Dry formula is a pellet shaped bait that works for dry environments—these pellets break down quickly (2-3 weeks), before non-targets have a chance to eat them. Wet formula is a pellet shaped bait



Monitoring activities will take place on the island for the next two years, which is the length of time needed to determine whether or not the island can be declared rodent-free. The island conservation project on North Seymour Island is the world's first use of drones to remove invasive vertebrates, but drones are now looking to be the go-to solution for bait dispersion on remote islands. ■



Above: Hatchling takes shelter under a rock. Below: North Seymour islands Blue-footed Booby bird perched on a rock. Left: Frigate bird nesting on the ground.



All photos credited to: Island Conservation

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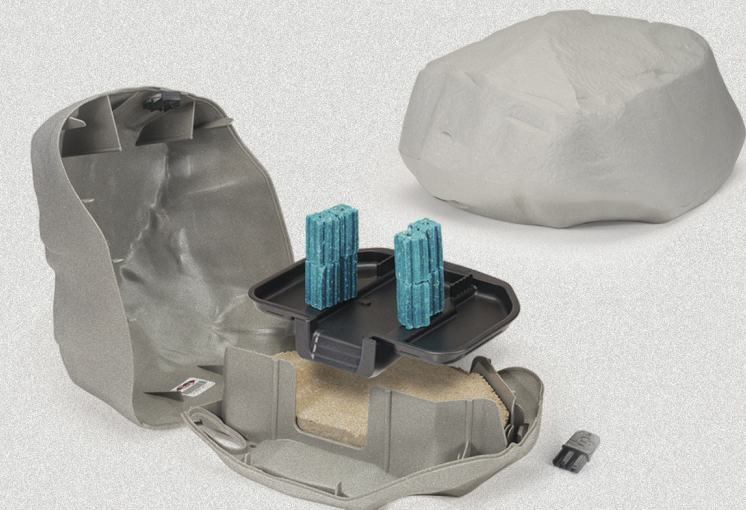
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