



Vehicle alterations to improve efficiency and reduce environmental impact in mosquito control applications.

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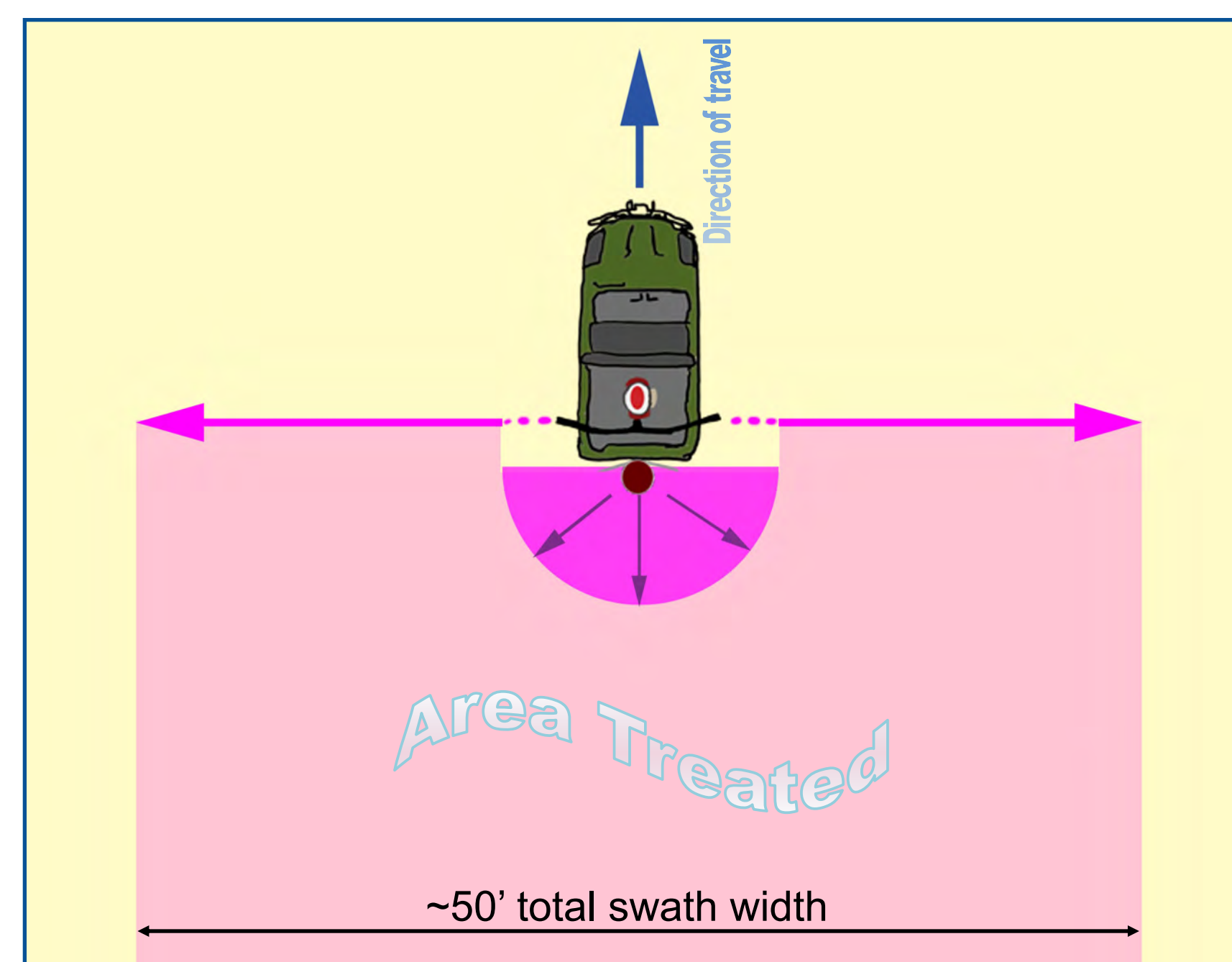


The Marin/Sonoma Mosquito and Vector Control District covers a two-county area of nearly 2,300 square miles, including 20,000 known sources of mosquito production. Many of the District's significant mosquito sources occur in areas inaccessible by a standard truck, including marshes, seasonal wetlands, flood plains, and other rugged or ecologically complex environments. For several years District vector control technicians have used both amphibious, tracked vehicles (ARGOs) and four-wheeled all-terrain vehicles (quad ATVs) to responsibly traverse this varied terrain. In 2016 and 2017, District shop and operations staff designed, fabricated, and installed modifications to off-road vehicles to better access and more efficiently treat these areas. These alterations are specifically engineered to improve the efficiency of field staff and minimize impact to the environment. A console-controlled Herd seed broadcaster and customized dual-direction Maruyama duster-blower unit mount were installed in ARGO vehicles to allow for a single technician to apply a granular material from the vehicle in a 50-foot swath. Aluminum plates were mounted on quad ATVs to provide a secure base for material and equipment transport. A backpack duster mount was installed to allow treatments to be made from the ATV. Stock tires were swapped out for wider turf tires with a less aggressive footprint, minimizing impact to trails and turf. Finally, a 50-gallon tank and spray rig was set up on a custom trailer to be pulled by a quad ATV. These modifications have fared well in preliminary trials and are promising additions to the District's mosquito control arsenal.

One-person duster/blower configuration for ARGO vehicles

Objectives

- Reduce vehicle weight
- Eliminate need for 2nd technician for treatments made from the vehicle
- Minimize time and footprint needed to treat large areas
- Maximize carrying capacity for extra material



Equipment is lightweight and allows for ample cargo space in vehicle.

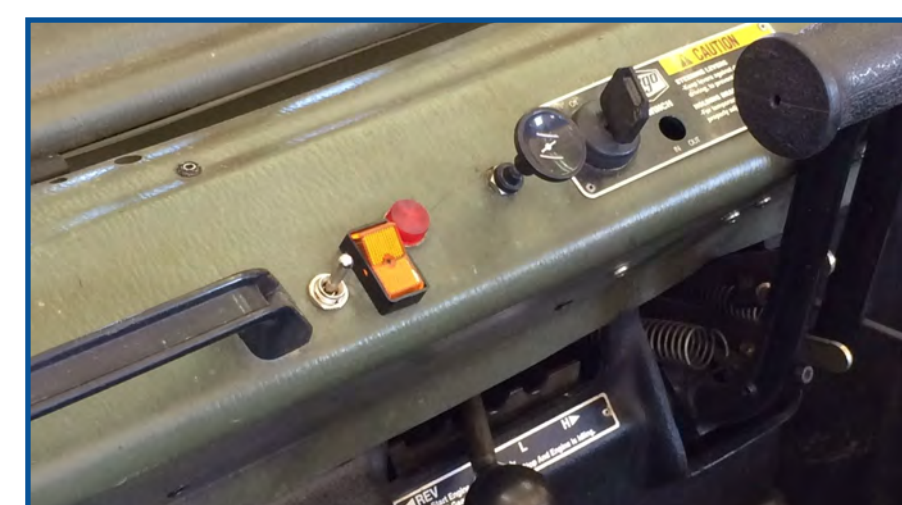


Duster/blower hoses (shown w/o extensions) lock into upright guides.



3" dual cleanout tee splits flow from blower; RV waste gate valves control flow to each hose.

Combined application from duster/blower and rear-mounted seed broadcaster creates a 50' swath.



The rear-mounted seed broadcaster is controlled by switches wired into the front console.



Removable sheet metal plates prevent blowback of material into vehicle.

Previous modification

- Chair was installed in rear of Argo to allow second technician to operate duster/blower on swivel mount



Drawbacks:

- Two people required
- This modification required exposing drive chains and reducing cargo space
- Extra weight of 2nd technician increased fuel consumption and impact on terrain

Multi-purpose duster/blower mount for quad ATV

Objectives

- Provide stable mount for backpack duster/blower
- Allow blower to be used while driving ATV
- Provide secure mount for spray tank
- Maximize carrying capacity for extra material



Lightweight 1/4" aluminum plates were mounted on the ATV. The front plate includes eye bolts to tie down bags of material or secure cargo basket.



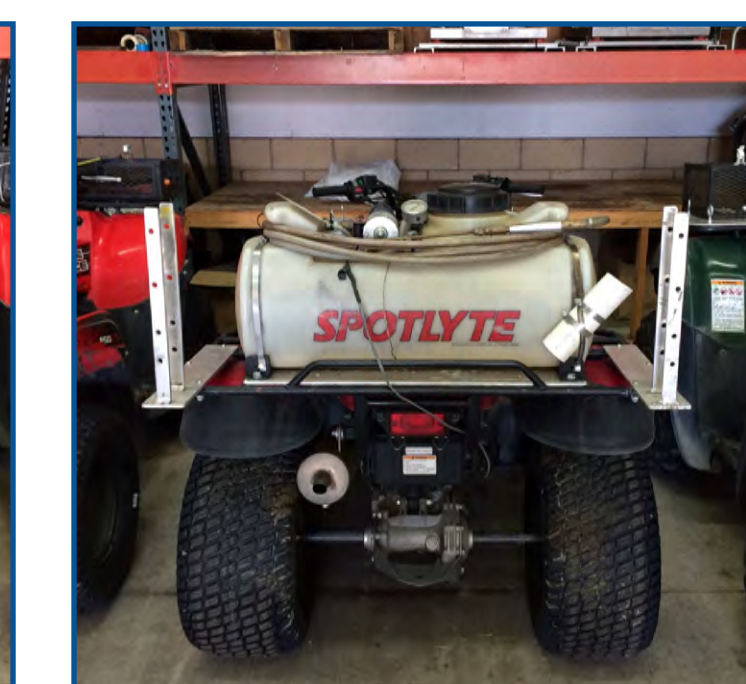
A vertical aluminum post on the rear plate provides the anchor for a backpack duster/blower unit.



Treatments using vehicle-mounted equipment can save time and prevent back injuries



Rear equipment plate also includes brackets for mounting a spray tank.

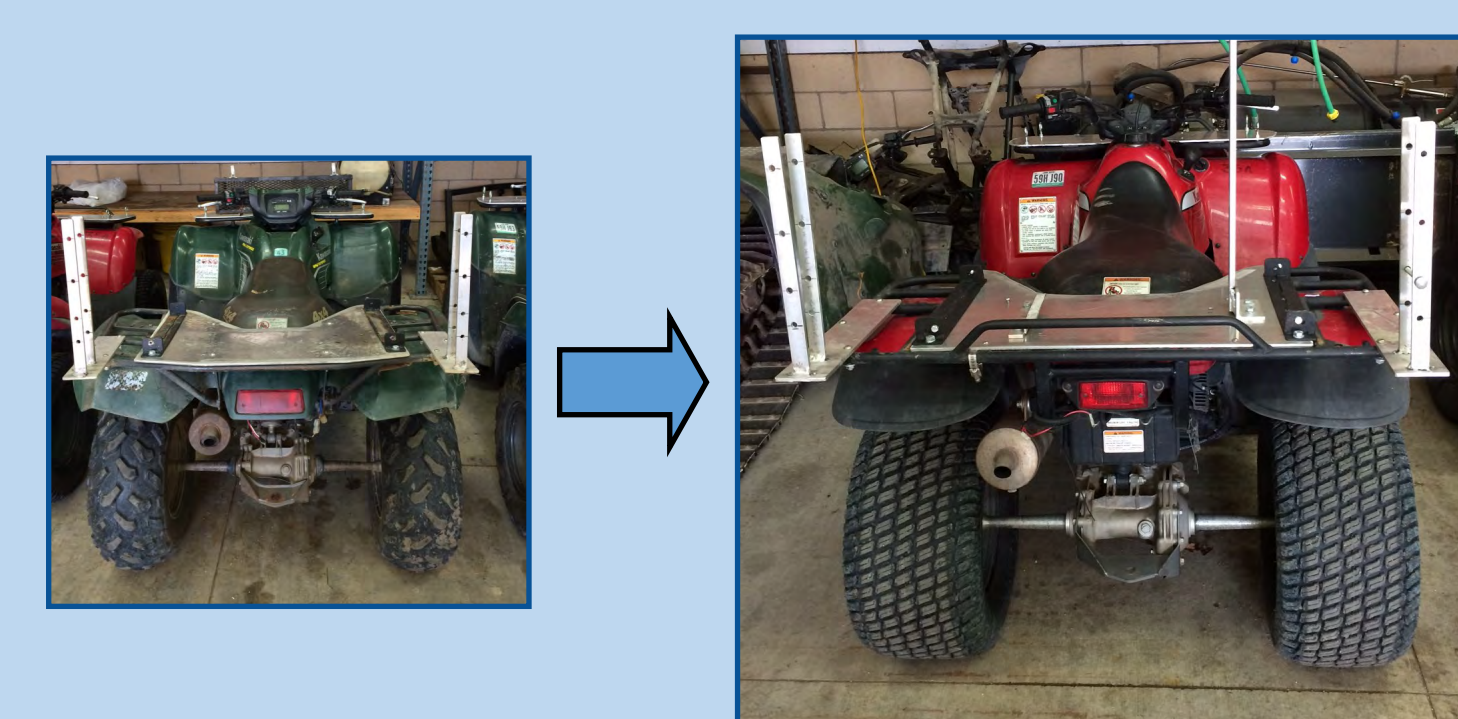


The duster/blower hose can be directed to face either side of ATV.

Additional modifications and custom accessories for quad ATV

Carlisle Multi-Trac C/S Tires

- Wider turf tires decrease impact on sensitive habitats



Front Cargo Basket

- Secure and convenient transport of equipment, tools, and other materials
- Removable



Quad ATV Tank Trailer

- 50 gal. tank with 50 ft. hose
- 12-volt battery-powered spray rig

