Trail Construction: Rigging and Highlines

The majority of trails are built by volunteers without the use of heavy machinery. Rigging and highlines utilize mechanical advantage to drag and lift heavy objects into place. The components below create a system that is highly effective in building trails.

THE DRAG

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Griphoists and rigging can be used to drag objects along the ground to their desired location.

BLOCK AND TACKLE

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Mechanical advantage known as block and tackle involves a winch with a 1-ton capacity and the need to move an object that weighs 2 tons. For every pulley added to the system, mechanical advantage is increased by one. One pulley offers a 2-to-1 advantage (1-ton winch exerts 2 tons of force), two pulleys offer a 3-to-1 advantage (1-ton winch exerts 3 tons of force), and so on.

THE GRIPHOIST

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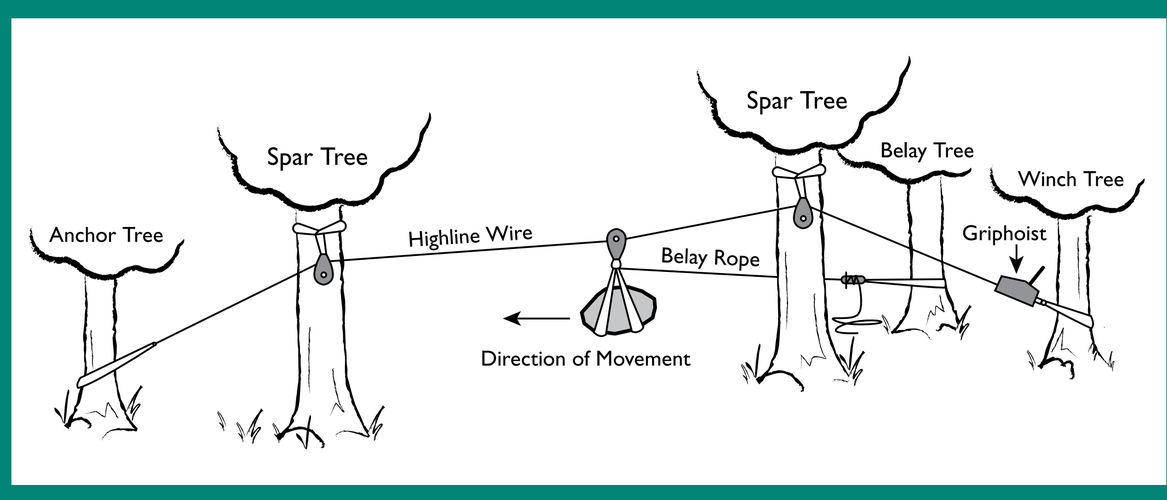
A griphoist is a type of winch that trail builders use to move heavy objects. The wire rope that is pulled through the machine can be set up in infinite ways to achieve the mechanical advantage needed to get the job done. The griphoist allows any human to exert multiple tons of force with minimal effort.



HIGHLINE

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Highlines allow trail builders to pick up an object and move it along the wire rope suspended in the air, minimizing the impact to the environment.

SPAR TREES

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To set up a highline, trail builders search for a set of trees onto which the wire rope will be anchored. The higher the highline is set in the trees, the more lifting capacity it has.

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Tree ladders and safety harnesses are used to climb up high in trees.