



**The International  
Canopy Network**

**Canopy  
Access  
Workshop**

**27 March 2006**

**Evergreen State College  
Seminar II, A-2107**

**Joint Annual Meeting:**

**The Society for  
Northwestern  
Vertebrate Biology**

**The Washington  
Chapter of  
The Wildlife Society**

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# Introduction

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Welcome to the ICAN sponsored Canopy Access Workshop at the Joint Annual Meeting of The Society for Northwestern Vertebrate Biology and The Washington Chapter of The Wildlife Society.

This workshop is organized in two parts: morning presentations by northwest forest canopy researchers, followed by an afternoon field session. Presenters will discuss their research on forest canopy organisms and interactions, emphasizing the methodology used in canopy research. The afternoon will be spent in the Evergreen campus forest where participants will enjoy a tree-climbing demonstration by an experienced arborist and have the opportunity to climb to secured canopy platforms. It should be emphasized that this workshop is NOT a certified training course, and cannot be substituted as such, but rather an introduction to some of the methods used to overcome the challenges of working in the forest canopy. Participants climb at their own risk.

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# Schedule

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- 8:30 *Sign in and pick up program*
- 9:00 Welcome to ICAN Canopy Access Workshop  
**Hannah Anderson**
- 9:15 Marbled Murrelet Nesting Ecology: Using Radiotelemetry, TreeClimbing, and Digital Video Surveillance to Study an Elusive Forest Canopy Species.  
**Tom Bloxton**
- 9:40 Accessing the Forest Canopy to Assess Bird Use of Epiphyte Resources in Old-Growth Douglas-Fir Forests.  
**Adrian Wolf**
- 10:05 The Use of Flipline and Spur Climbing to Assess Northern Flying Squirrel Den Use on The Forest Ecosystem Study  
**Hans Purdom**
- 10:30 *Break - Coffee and Tea available  
first floor lobby*
- 10:50 Canopy Access with Construction Cranes.  
**Dave Shaw**
- 11:15 Comparison of Four Ground-Based Canopy Cover Estimation Techniques in the Western Oregon Cascades and their Potential Use Above Ground.  
**Anne Fiala**
- 11:35 Directions for Afternoon Session
- 11:45 *Lunch at Greenery Cafe  
Campus Activities Building*
- 12:45 Van Pickup in Longhouse Parking lot  
**Shuttle to field site**
- 1:00 Gear, Safety, and Single-Rope Climbing Demonstration  
**Matt Dunlap**
- 1:45 Participants have opportunity to climb trees to secured canopy platforms
- 3:15 First Shuttle Back to Campus
- End Second Shuttle Back to Campus

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# Abstracts and Biographies

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## **Marbled Murrelet Nesting Ecology: Using Radiotelemetry, Tree Climbing, and Digital Video Surveillance to Study an Elusive Forest Canopy Species**

*Thomas D. Bloxton, Jr., Martin G. Raphael, and Nicholas R. Hatch  
USDA Forest Service, Pacific Northwest Research Station, 3625 93rd Ave. SW,  
Olympia, Washington 98512; [tbloxton@fs.fed.us](mailto:tbloxton@fs.fed.us)*

We are using a combination of radiotelemetry, fixed rope tree-climbing, and digital video surveillance to gain a better understanding of Marbled Murrelet nesting ecology on the Olympic Peninsula. Since 2004 we have radiotagged 67 adult murrelets at sea adjacent to the Peninsula with the goal of locating inland nest sites of breeders. Nest trees are located with a combination of aerial and ground-based radiotracking during the alternating days when tagged birds are incubating. After identifying the nest tree a climbing rope is rigged in an adjacent tree and climbed using ascenders. A zoom camera is placed in a location that permits diurnal monitoring of the murrelet nest from a distance of 35-60 feet. We are also placing infrared cameras in some nest trees during the non-breeding season with the anticipation that they may return to the same nest limb in the following year. Infrared cameras allow video monitoring during darkness also. After nesting we climb every nest tree to take measurements and photographs of the nest tree, limb, and depression.

### **Tom Bloxton**

Tom Bloxton received a Master's of Science degree from the University of Washington in 2002 where he studied the foraging ecology of Northern Goshawks in western Washington. Tom is currently the lead biologist for the PNW Research Station's Marbled Murrelet project which involves at-sea population monitoring in the inner marine waters of Washington State and radiotelemetry research on the Olympic Peninsula.

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# Abstracts and Biographies

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## Accessing the Forest Canopy to Assess Bird Use of Epiphyte Resources in Old-Growth Douglas-Fir Forests

*Adrian Wolf*

*The Evergreen State College, Master of Environmental Studies Program,  
Olympia, WA 98505; Adi\_flow@hotmail.com*

The ecological roles of and resources that Pacific Northwest epiphytes provide for vertebrates are poorly known, particularly for birds. If epiphytes are an important foraging and nesting resource for birds, current and future management activities may have negative effects on bird community diversity and abundance. I used mountain-climbing techniques to gain access to the forest canopy to quantify the frequency that birds use epiphyte resources relative to other forest canopy resources. Data on bird foraging behavior and substrate use were collected within defined viewing arenas at two levels in the forest (lower zone: 0 to 30m; and upper canopy level zone: 30m to 60m), and through walking transects. Walking transects were conducted to supplement the fixed distance canopy sampling effort. Foraging observations were dictated into digital voice recorders and later transcribed to an Access database. This method was employed to assess total epiphyte use by species and foraging guild within six epiphyte functional categories. I will determine: 1) the number of species that use epiphytes, 2) frequency of substrate use within each foraging guild, 3) the proportion of total activities that involve epiphytic resources, relative to tree resources; 4) proportion of foraging behaviors associated with epiphyte substrates, relative to tree resources; and 5) comparison of host tree resource use versus epiphyte resource use. I also conducted variable circular plot (VCP) point counts from the canopy and ground level simultaneously, to assess whether ground level point count assessments are a reliable method for detecting forest birds.

### **Adrian Wolf**

Adrian Wolf is currently a graduate student in the Masters in Environmental Studies program at The Evergreen State College. He received his undergraduate degree in Environmental Analysis and Design/Social Ecology from the University of California, Irvine (1993). He has over 10 years of experience in wildlife and botanical surveys, working for the California Department of Parks and Recreation, and as vice president for an Environmental Consulting Firm in Southern California. He has co-authored more than 10 publications in professional journals in the areas of Botany, Ornithology and Restoration Ecology. He became impassioned about forest canopies after assisting in a radio telemetry and fruit dispersal study of *Ramphastos* toucans in the Ecuadorian Amazon Rainforest. He is presently completing his thesis entitled: Bird use of Epiphytic Resources in an Old-Growth Douglas-fir forest of the Pacific Northwest.

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# Abstracts and Biographies

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## The Use of Flipline and Spur Climbing to Assess Northern Flying Squirrel Den Use on The Forest Ecosystem Study.

*Hans W. Purdom*

*USDA Forest Service, Pacific Northwest Research Station, 3625 93rd Ave. SW, Olympia, Washington 98512; hpurdom@fs.fed.us*

The FES was initiated in 1991 to address the development of northern spotted owl (*Strix occidentalis*) habitat through the manipulation of managed stands. The primary prey of the northern spotted owl in both Western Washington Douglas Fir and Western Hemlock forests is the northern flying squirrel (*Glaucomys sabrinus*). This nocturnal squirrel uses cavities and various forms of sticknests as dens. A means by which to assess flying squirrel use of natural and artificial dens was needed. The flipline and spur method was chosen because it is generally easy to use, reliable, safe and acceptable in managed stands. In April 1992, 16 nestboxes and 16 cavities were systematically distributed on eight of the sixteen FES stands. Both cavities and nestboxes were placed at approximately 6m height. Because the majority of nestboxes showed signs of use by spring 1995, an additional eight nest boxes per augmented stand were added at a height of 12m. Checks of these artificial structures occurred twice a year from 1992 to 1999. Finally, in June of 2005 twenty four larger nestboxes were distributed on the eight augmented stands. Initial radio telemetry tracking shows little use of the new nestboxes. A full check is tentatively scheduled for summer 2006.

### Hans Purdom

Hans Purdom got his start in wildlife ecology surveying Desert Tortoises in the Mojave Desert with his evolutionary biologist uncle. One of his earliest wildlife memories is cramming his head into a tortoise burrow only to be met by a cold, slow rattle snake. Hans studied Zoology at the University of Washington before transferring to The Evergreen State College where he received his undergraduate degree. Over the past decade, Hans has worked all over the west coast studying animals as disparate as Flying squirrels and lentic breeding amphibians. Hans is currently employed by the Olympia Forest Sciences Laboratory on the Ecological Foundations of Biodiversity team and is a graduate student at Evergreen. Hobbies include house renovation, gazing at maps, backcountry research, and eating elk jerky.

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# Abstracts and Biographies

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## Canopy Access with Construction Cranes

*David C. Shaw*

*Department of Forest Science, Oregon State University, Corvallis, Oregon 97331;  
dave.shaw@oregonstate.edu*

Construction cranes provide one form of canopy access with both very positive attributes and some draw backs. Construction tower cranes are the most prominent type of crane used throughout the world for canopy access because they are tall, swing completely over the stand, and provide a large access area. They are particularly good for studies on tree physiology and water use. Arguments for canopy cranes include: long term study sites that require repeated access to all dimensions of the canopy, studies that require sampling the space between trees and the tops and growing tips of trees, getting people into the canopy that would normally not do canopy science (lots of hot shot scientists can't climb trees), and generating hypotheses for testing at broader scales. Arguments against cranes include lots of money invested in one forest site (N = 1), wildlife may be scared away, depends on large crew of people, winds shut down the crane, night time operation limited, and safety considerations may limit use of the crane. One very positive thing about canopy cranes is their potential use for teaching and other educational purposes. The International Canopy Crane Network is a network of 11 construction tower cranes around the world that are being used for canopy research. More cranes may be coming on line in the future.

## Dave Shaw

Dave Shaw received his BS in Biology and Applied Plant Science from Northern Arizona University in 1977. In 1982, he received his MS in Biology from Western Washington University, followed by a Ph.D. Forest Pathology and Protection from the University of Washington in 1991. From 1991-1994 he worked at the Olympic Natural Resource Center on the Olympic Canopy Crane, that never was. From 1994-2005 he worked at the Wind River Canopy Crane Research Facility, that was. Since 2005, Dave has worked as an Extension Forest Health Specialist (Assistant Professor) in the Department of Forest Science at Oregon State University. He is the Director of the Swiss Needle Cast Cooperative and specializes in biology and ecology of forest diseases and insects. Dave is interested in all aspects of forest biology, ecology, and protection from the sky to the rocky depths.

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# Abstracts and Biographies

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## Comparison of Four Ground-Based Canopy Cover Estimation Techniques in the Western Oregon Cascades and their Potential Use Above Ground.

*Anne C.S. Fiala*

*The Evergreen State College, Olympia, WA 98505*

*fialaa@evergreen.edu*

Estimates of forest canopy cover are widely used in forest research and management, yet methods used to quantify canopy cover and the estimates they provide vary greatly. Four commonly-used ground-based techniques for estimating overstory cover—line-intercept, spherical densiometer, moosehorn, and hemispherical photography—were compared in five Douglas-fir/western hemlock structure types in western Oregon. Differences in cover estimates among the ground-based methods were not related to stand-structure type ( $p=0.33$ ). As expected, estimates of cover increased and stand-level variability decreased with increasing angle of view among techniques. However, the moosehorn provided the most conservative estimates of vertical-projection overstory cover. Ground-based measures are recommended for specific objectives, and applications of the techniques for measurements of cover above ground within canopies are also discussed.

### **Anne Fiala**

Anne Fiala is a forest ecologist working with the NSF-funded Canopy Database Project (CDP; [canopy.evergreen.edu](http://canopy.evergreen.edu)) at the Evergreen State College, Olympia, WA. She has a BS (Hons.) in Biology and Chemistry from the University of British Columbia (1996). She worked as a fisheries biologist in the Pacific Northwest prior to receiving her MS in Forest Science from Oregon State University in 2003. Her thesis focused on forest canopy structure in western Oregon: characterization, methods for estimation, prediction, and importance to avian species. In her current position with the CDP her research focuses on a Douglas-fir/western hemlock chronosequence in the southwestern WA Cascades. Her position also involves development, testing, and teaching of ecoinformatics tools for canopy researchers. She also teaches Forest Ecology of the Pacific Northwest during Evergreen's summer quarter.

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# Abstracts and Biographies

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## Canopy Access Demonstration

*Matt Dunlap*  
*Progressive Plants, Seattle, WA*  
*mattdunlap2000@yahoo.com*

### Topics :

**Climbing gear** - ropes, ascending and descending devices, webbing, carabiners

**Hazard tree assessment** - disease and decay, snags, crotches, etc.

**Tree rigging** - throwbag, slingshot, crossbow

**Knots** - figure-8, bowline, hitches, etc.

**Safety** - what to check and double-check, etc.

**Canopy platforms**

**Single rope climbing demonstration**



## Matt Dunlap

Matt Dunlap has had 10 years of professional tree climbing experience including 6 years of climbing instruction. Matt received his A.A. in Horticulture/Arboriculture and has been an ISA Certified arborist since 1998. He graduated from The Evergreen State College with an emphasis in canopy sciences in 2004. Matt is an arboriculture business owner, Progressive Plants, since 2002. He has worked with ICAN and Nalini Nadkarni in the past on several projects such as Legislators Aloft, Branching Out, Artists Aloft, and Chautauqua. Matt currently continues his forest and canopy education by directing and developing a new documentary on Temperate Rainforest Canopies and Ecology as well as consulting for a reputable arboriculture service in Seattle, Trees for Life, and as a design and environmental consultant/tour manager for Grip It Adventures international canopy projects. He looks forward to meeting all the individuals involved with the Canopy workshop for the SNVB/TWS Conference and is looking forward to learning something new from each of you.

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# Resources

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## Tree Climbing

### **USDA National Tree Climbing Program**

The National Tree Climbing Program has been developed in an ongoing effort to ensure the safety of USFS tree climbers, and the integrity of existing climbing activities.

<http://www.fs.fed.us/treeclimbing/>

### **Pacific Tree Climbing Institute**

PTCI is a registered Oregon outfitter/guide service making the forest canopy accessible for the sake of education, personal growth and adventure.

<http://www.pacifictreeclimbing.com/home.html>

### **Global Canopy Programme**

The GCP offers courses in canopy access training.

<http://www.globalcanopy.org/training>

### **Tree Climbers International**

Everything you need to know about tree climbing and safety

<http://www.treeclimbing.com/>

## Gear

### **Sherril Tree Climbing Supply**

Sherrill sells tree climbing and arborist equipment and supplies

<http://www.wtsherrill.com/>

### **New Tribe**

In Grants Pass, Ore., sells equipment for recreational tree climbers.

866-223-3371, <http://www.newtribe.com/>

### **Gear for Good**

Locates and solicits donations of demos, seconds, and warranty returns from outdoor companies and give them to grassroots activists who need them, yet can't afford them.

<http://www.gearforgood.org/>

### **Wesspur**

Tree climbing equipment and arborist supply store

<http://www.wesspur.com/>

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# Resources

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## Walkways

### **Canopy Access Providers**

CCA provides canopy access and consultation with regard to site, selection of access options, and costs.

<http://www.canopyaccess.com/>

### **Greenheart Conservation Company Ltd.**

A Canadian company that designs, builds and operates conservation based canopy walkways (canopy trails) and other nature-based attractions around the world.

<http://www.greenheartconservation.com/>

### **Grip It Adventruers Canopy Tours**

Grip-it Adventures is an innovator in the design and manufacture of canopy tour systems. Through our engineering excellence, our passion for quality, innovation and safety, we have gained the reputation of making our clients impossible dreams come true.

<http://www.giacanopytours.com/>

## Canopy Cranes

### **Wind River Canopy Crane Research Facility**

A description of the use and research associated with the Wind River Canopy Crane.

<http://depts.washington.edu/wrccrf/>

### **Panama Canopy Cranes**

The Panama Canopy Cranes at the Smithsonian Tropical Research Institute

<http://www.stri.org/english/research/facilities/terrestrial/cranes/index.php>

### **Austrailian Canopy Crane**

Australian Canopy Crane Research Facility

<http://www.rainforest-crc.jcu.edu.au/canopyCrane.htm>

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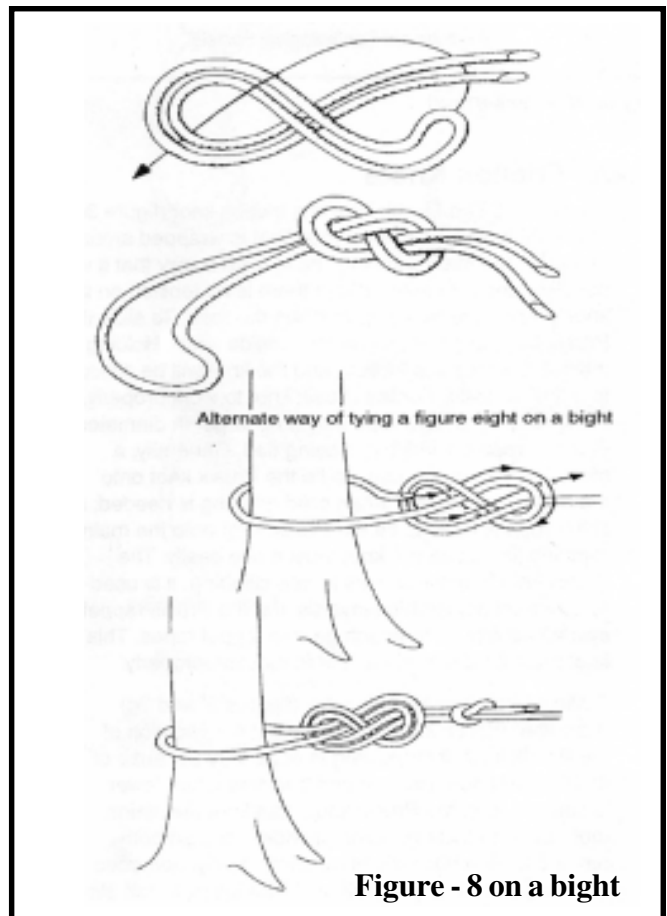
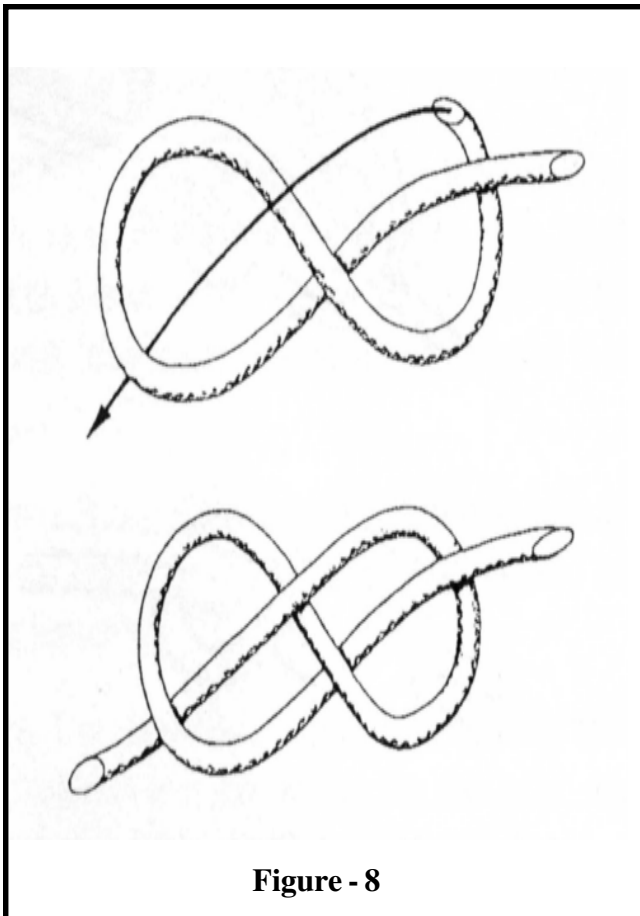
# Knots

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Pictured here are three common and useful knots used in tree climbing.

Your workshop packet includes a meter length of rope for you to play with and practice these knots.

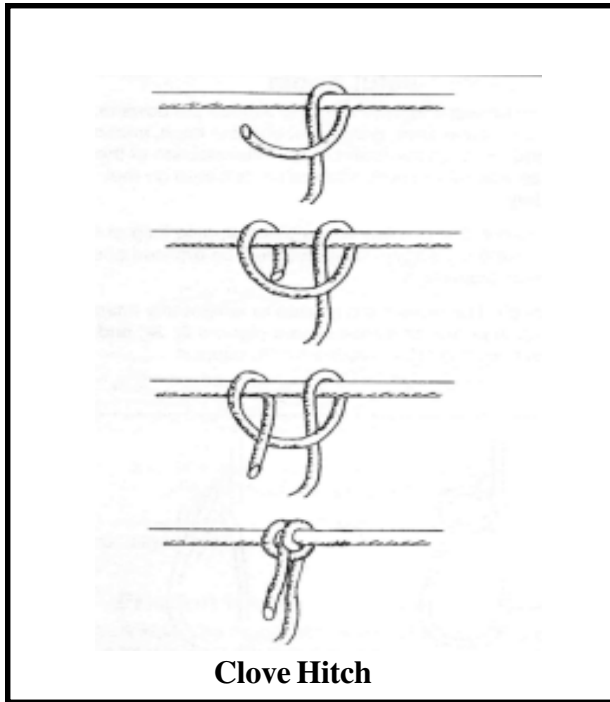
The **figure-8 knot** is easy to tie and has several useful variations, making it one of the most versatile knots for climbers. Pictured here is the basic figure-8 and the figure-8 on a bight. A bight is simply a loop in the rope. The figure-8 knot can be used for joining two sections of rope together; attaching rope to a rigging point; attaching ropes, lanyards or safety lines to climbers; as a safety knot on the end of rappel lines; and for many other tree-climbing activities. This knot must be dressed and set to function properly.



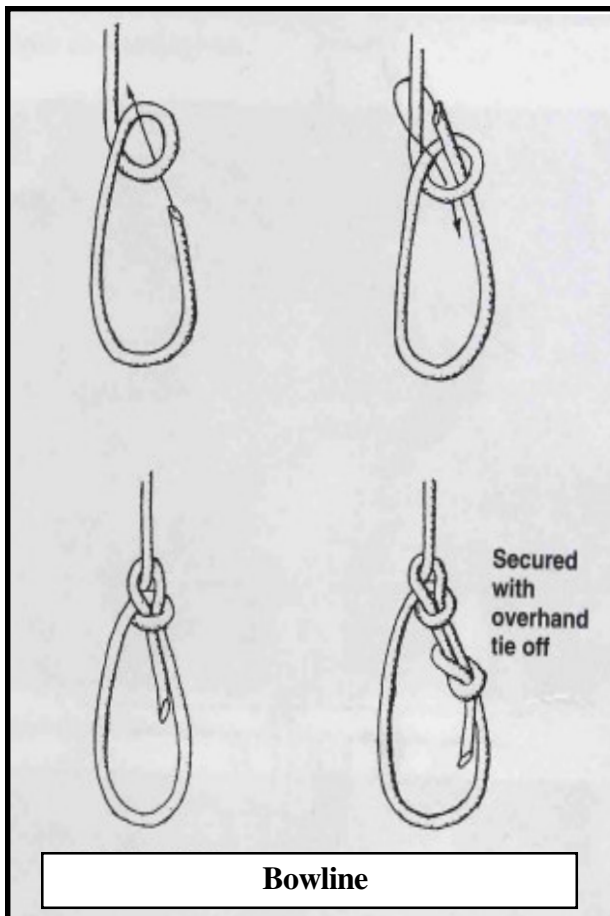
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# Knots

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The **clove hitch** is used to temporarily attach tools and materials to a rope or tree, often used by ground support to send gear up the tree to the climber. The clove hitch is **NOT** suitable for life support.



The **bowline** knot is another very useful knot for tree-climbers and is often used to loop around and secure the rope to an adjacent or climbing tree as the ground rigging point. The bowline forms a nonslipping loop at the end of a rope. This knot must be dressed and set to function properly.



## **Become a Member of ICAN**

### **Member benefits include:**

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- A tri-annually updated directory, containing over 800 contacts in the canopy community
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- Professional meetings and symposia
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#### ICAN T-shirts

Please indicate quantity of each size and style:

Standard-T, Natural, Jeffrey Pine

S	M out of stock	L	XL out of stock
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Standard-T, Natural/White, Oak

S out of stock	M	L out of stock	XL
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Ladies cut-T, Green Tea, Jeffrey Pine

S	M	L	XL
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#### Totals

Item	Price	#	Total
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