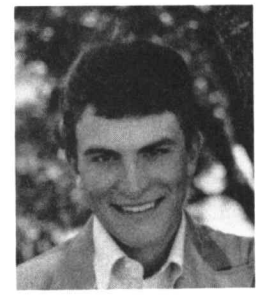
'No One Needs Knapweed'

Russ Linhart



This is the first place High School Youth Forum paper presented at the 1985 SRM Meeting in Salt Lake City.

Russ Linhart, a 1985 senior from Hobson, Mont., represented the International Mountain Section. Russ is the current president of the High School Youth Forum and will preside over the Forum in Orlando in 1986.

Russ plans to further his education in agriculture at Northwest Community College, Powell, Wyo., in the fall of 1985.

A killer is invading Montana! Like a cancer it is spreading at runaway speed, getting out of control, and destroying its victims! The livelihood of the rancher, the hunter, the logger, in fact the livelihood of almost everyone in Montana is being affected by this killer.

Who is this killer? SPOTTED KNAPWEED *(Centaura maculosa)*. Don't be fooled by its beautiful flowers painting the landscape. Forage production in Montana could be cut by 60% in just 10 years by this weed. You can well visualize its toll would be staggering. It could cost millions of dollars to the economy, forcing some ranchers out of business. It would reduce the big game hunting for the hunter and outfitter; and, like falling dominoes, the motels, restaurants, stores, and many other other businesses would be at the mercy of spotted knapweed.

Believe me, this is not a dream; spotted knapeweed kills and kills. It kills livestock forage, which results in a drastic loss of valuable forage. Severe infestation forces the rancher to look elsewhere for pasture. It kills wildlife forage on range and woodland. Big game are then forced to the rancher's hay stacks and crop fields. Knapweed kills timber seedlings. Just think of the potential devastation this could do to the lumber and paper industries. Spotted knapweed also kills stream fisheries. As it destroys the plants that bind the soil, erosion occurs, thus polluting the waters.

Spotted knapweed is phytotoxic meaning that it kills other plants. Knapweed produces the chemical cnicin. Cnicin is produced and concentrated in the leaves and stems of the plant. After a heavy frost the leaves will fall to the ground and the cnicin is released into the soil. This chemical inhibits the growth of other plants including conifers and is believed to require 10 to 12 months before it is completely degraded and leached from the soil. This results in less competition for knapweed, which has no natural enemies in the United States.

Spotted knapweed is believed to have been introduced into the United States in alfalfa seed. Sixty years ago the first plant sample was sent to the Montana State University Herbarium from Ravalli County. Forty years ago it was identified growing in 7 counties. In 1980 it was found in 28 Montana counties. Today spotted knapweed is known to grow in all 56 Montana Counties.

Spotted knapweed will grow anywhere. Like most weeds it easily invades disturbed areas. It is capable of entering closed plant communities. It is extremely adaptive in cool climates, thrives on moist areas, and is found at elevations up to 7,000 feet. Its favorite place is on the dry and sunny slopes.

Spotted knapweed is easily recognized with its showy pink to purple to infrequent white blossoms. Each bract surrounding the flower head is marked with fine, dark vertical lines and tipped with a dark fringe. The narrow leaves are cleft, somewhat like a dandelion leaf. The seeds germinate in the fall and spend the winter in a dormant stage. The rosettes begin regrowth in April, an earlier start than for most range plants in Montana. It grows 2 to 4 feet tall with many branching flower stalks that start blooming in July. Each flower is in bloom for 2 to 6 days. About a month later the bracts open and the seeds start to scatter. Each plant produces about 1,000 seeds. The seed dispersal is relatively close to the mature plants, usually falling within a 1-yard radius of the mature plant.

The fast spread of knapweed is primarily man caused. The tough, dried plants snag on the undercarriages of vehicles, spreading seeds along backroads, recreation areas, and across range and forest areas. It is estimated that 95% of the 2 million-acre infestation occurs along the highways in Montana.

Even though the stage is set for an explosive invasion, this weed is easy to kill compared to other weeds. The best control method is preventing knapweed from getting a start! Learn to recognize spotted knapweed, report initial sightings, and never drive a vehicle through an infestation.

Several control methods have been used. They are mechanical, grazing, fire, biological, and chemical.

Mechanical control such as mowing or plowing is not the best method as regrowth occurs after mowing and the plant still produces seeds. Most rangelands are not suited for plowing where infestations occur.

Some ranchers have forced sheep to graze knapweed. Sheep and most other animals tend to over-graze desirable plants bfore using knapweed, which has a bitter taste and inhibits digestion in ruminant animals. Also, severely hedged plants still can recover and produce seed.

The use of fire is economical. A successful fire must reach a temperature of at least 800 degrees in order to damage the seeds enough to prevent germination. Most knapweed infes-

tations, however, do not produce enough forage to fuel a hot burn, and fire also doesn't burn evenly and some plants escape the burn untouched.

Biological control is in the experimental stage. There is work with the *Upora affinis* known as the gall fly. This fly will lay its eggs in the immature flower bud of the plant. The larvae feed on the seeds. The plant reacts by forming a gall or cyst around the larvae. On the average the gall fly can reduce seed production by 95%, but there is still that 5% that escapes as viable seed and is enough to restock the infestation.

The most effective control is chemical control. Two pounds of 2,4-D amine and 1/5 pound of Tordon applied to knapweed in the 6-inch growth stage has given 100% control at two Montana State University research plots. The control with 2,4-D alone has produced extreme variability, from no control to almost 100% control. Repeat applications are needed every 2 years. It is estimated that seeds are viable for up to 5 years. •

Life Members (continued)

Henry & Dorothy Pearson
J. F. Pechanec
Rudy J. Pederson
Mike Pellant
W. C. Pendray
Gregory Perrier
Ronald R. Perrin
Willard P. Phillips
Mr. & Mrs. T. Boone Pickens
William D. Pitman
Rod Player
A. Perry Plummer
Ivan R. B. Porter
Jeff Powell
Thomas H. Pozarnsky
Scotty G. Prescott
J. Boyd Price
L. Glen Quigley
Charles M. Quimby
Clayton L. Quinnild
Klaus Radkte
Bobby & Reba Ragsdale
Harold M. Ratcliff
Elbert H. Reid
F. G. Renner
Steven Thomas Revie
Don R. Richardson
Ronald E. Ries
Laurence E. Riordan
Walter M. Risse
Larry R. Rittenhouse
Joseph H. Robertson
Winthrop Paul Rockefeller
Ernest D. Romero
Robert L. Ross
Elno D. Roundy
John Row
Philip R. Rumpel
Brad Russell
Faith E. Ryan
Warren K. Sandau
Kenneth D. Sanders
H. Reed Sanderson
Gary Satter
Ted Scherer, Jr.
Al F. Schlundt
Harold B. Schmidt
Ervin M. Schmutz
Charles M. Schumacher
John L. Schwendiman
Milton Sechrist
Donald J. Seibert
Douglas V. Sellars
Harold E. Shamley
Gail E. Sharp
Weldon O. Shepherd
James L. Shive
John A. Shrader
Mrs. M. Silia
Jon M. Skovlin
Arthur D. Smith
Michael A. Smith
Sydney E. Smith
Terry Joe Smith
Floyd L. Snell
Carol A. Sparks
Thomas L. Sparks
Bill Stark
Stan Starling
Warren J. Stevens
Robert L. Storch
W. J. Stuart
James Stubbendieck
Walter H. Sundell
Faisal Khidir Taha
Charles E. Taylor
Paul G. Taylor
Peter W. Taylor
Clair E. Terrill
Courtney A. Tidwell
David P. Tidwell
John Stanley Tixier
Lynn D. Todd
T.W. Townley-Smith
Mark Trask
George T. Turner
P.E. Van Cleave
Albert L. Van Ryswyk
Dee Moore Vanderburg
Robert E. Wagner
Ronald M. Walters
Carl L. Wambolt
C.H. Wasser
Fred L. Way
George E. Weaver
Wayne J. Weaver
Noel H. Wellborn
Dick Whetsell
Steve Whisenant
Warren C. Whitman
Gerald D. Widhalm
Kay W. Wilkes
Calvin E. Williams
Robert E. Williams
W.A. Williams
Robert M. Williamson
Terry Wilson
Leaford C. Windle
Peter H. Wingle
Gale L. Wolters
Waldo E. Wood
Jerome H. Wysocki
Jim Yoakum

Note: The names of CLARE HENDEE and MR. and MRS. ALFRED H. WALKER were inadvertently omitted from the published list of Sustaining Members.