

TECHNICAL NOTE

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Reference: ENHANCING THE WILDLIFE VALUES ASSOCIATED WITH WINDBREAKS

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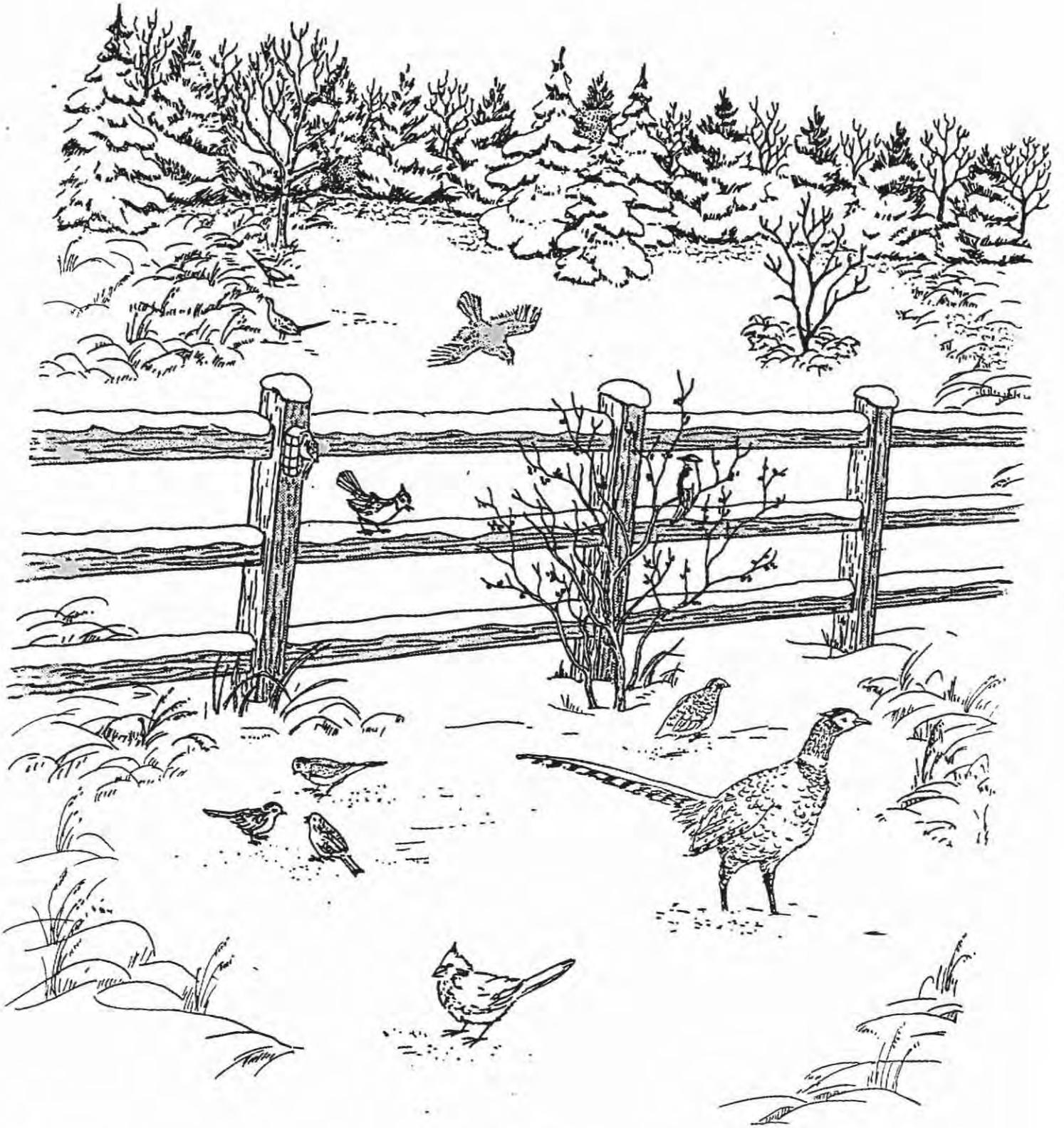


NOTE: This technical note was developed to encourage the enhancement of the wildlife values associated with windbreaks. In most cases, where windbreaks can be planted, there are extensive opportunities to make new plantings and improve older plantings for the enhancement of wildlife values. In many areas, windbreak plantings provide the only significant cover and food during critical times of the year. By utilizing the ideas presented in this technical note, the wildlife values of windbreaks can be substantially increased in these and all other areas.

The author wishes to thank Rex Hamilton, wildlife biologist, MNTP, SCS, Lincoln, Nebraska, for assistance on the development of table 1 and for a critical review of the other information that has been presented; and Gary Wells, landscape architect, MNTP, SCS, Lincoln, Nebraska, for assistance on the development of figure 7.

Local Technical Guides should be consulted for specific windbreak specifications.

ENHANCING THE WILDLIFE VALUES ASSOCIATED WITH WINDBREAKS



(Adapted from Ohio Dept. of Natural Resources)
Figure 1. Windbreaks benefit wildlife in many ways.

WILDLIFE USES

Windbreaks (all types) are useful to wildlife for a wide variety of purposes. The most important wildlife

uses are for cover, reproduction, and food. Figure 2 illustrates the basic components of a good windbreak-wildlife planting.

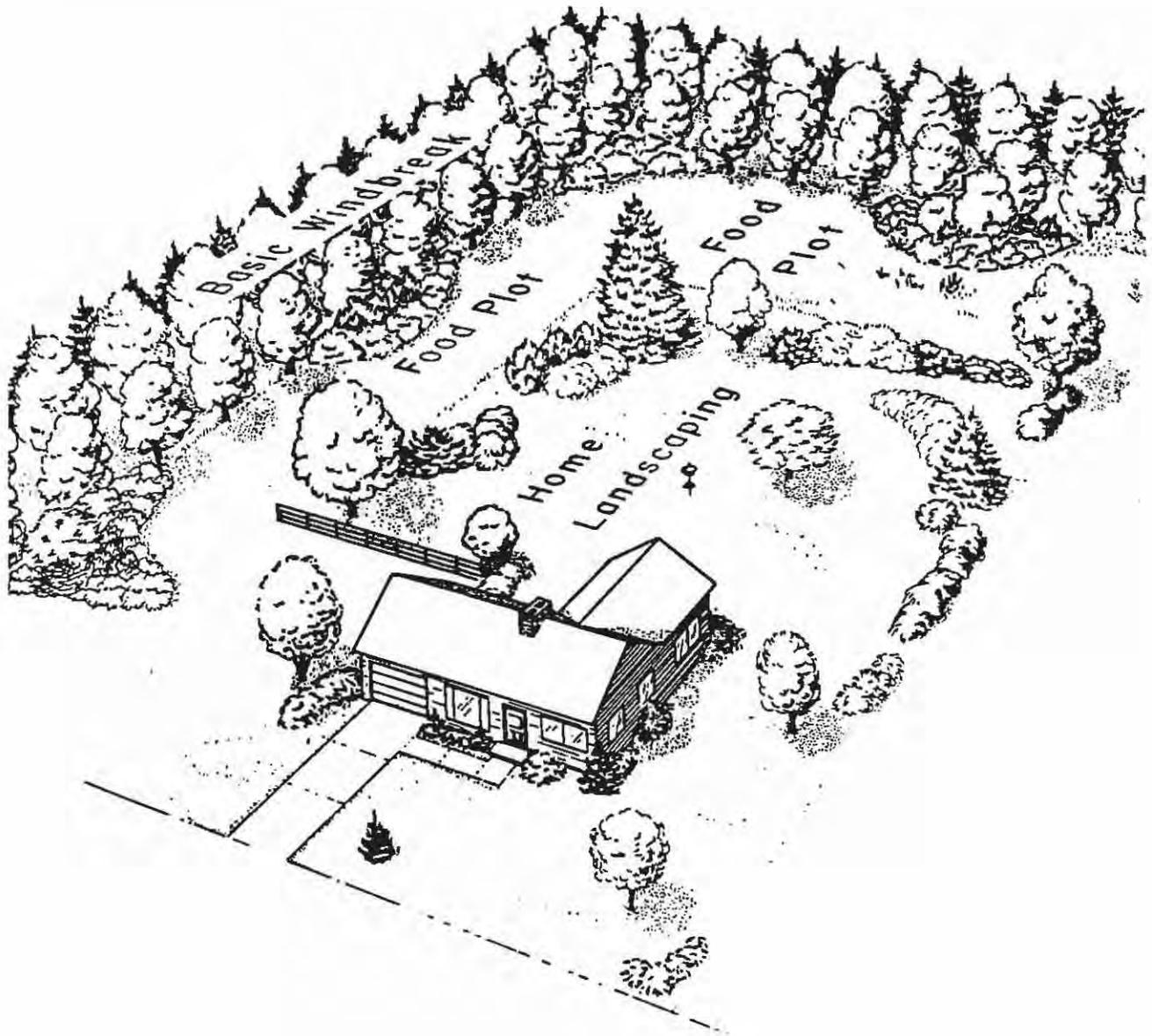


Figure 2. Basic components of a good farmstead, ranch headquarters or residential windbreak-wildlife planting.

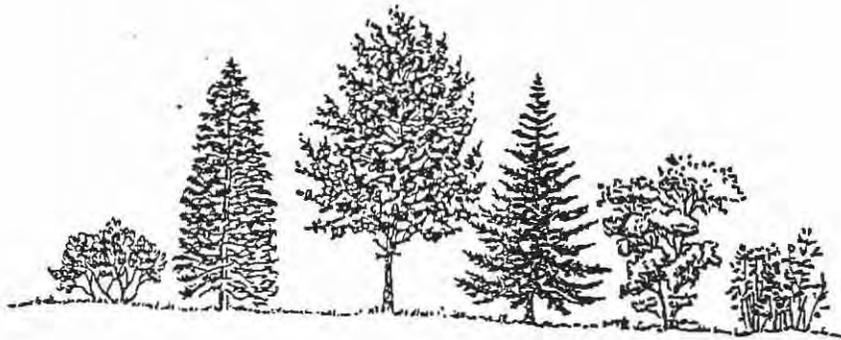
COVER

The cover value of windbreaks is directly related to the species composition and size of the plantings. Generally, the use of a wider variety of species results in a greater diversification in wildlife species. Windbreaks that contain rows of trees and shrubs, for instance, provide more niches for more species of wildlife than those composed only of tall trees. The size of a windbreak can have an effect on the numbers of a given species. Size can also have a direct effect on the usefulness of windbreaks for wildlife. For example, studies have shown that in the northern Great Plains wide windbreak plantings are more useful to species such as pheasants during severe winter storms. Narrow windbreaks in the same area are

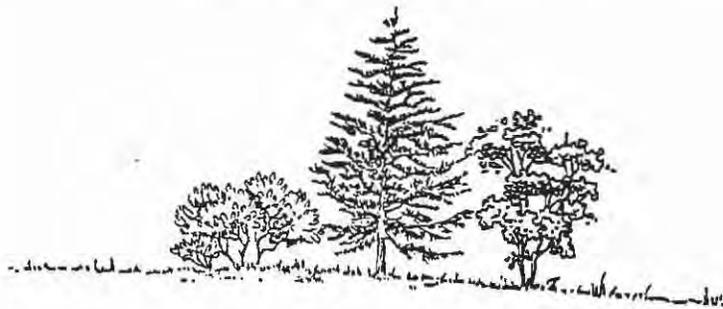
prone to severe snow drifting during severe storms, rendering them useless to pheasants when there is a critical need for cover.

When concerned about the cover value for windbreaks, use a variety of trees and shrubs (see figure 3) of varying heights and make the plantings large enough to provide adequate cover during critical times of the year. This is especially true in areas that are intensively cropped. Often, in intensively cropped areas, windbreaks provide the only significant cover available during severe winter and early spring storms.

Table 1 lists a few examples of trees and shrubs which significantly enhance the wildlife values of windbreaks.



6 Row Planting



3 Row Planting

Figure 3. Use a variety of tree and shrub species of different heights and densities.

Table 1, Examples of Trees and Shrubs Which Can Be Used to Enhance the Wildlife Values of Windbreaks

Plants for Basic Windbreaks, Auxiliary Wildlife Plantings and Snow Traps

Trees	Basic Windbreak	Auxiliary Wildlife Planting	Snow Trap	Food	Cover	Nest or Den Site	Shrubs	Basic Windbreak	Auxiliary Wildlife Planting	Snow Trap	Food	Cover	Nesting Site
Arborvitae (Thuja)	x	x	x		x	x	Autumn-olive	x	x	x	x	x	
Arizona cypress	x	x			x	x	Big sagebrush	x	x	x		x	
Ashes	x			x			Big saltbrush (Quailbush)	x	x		x	x	
Black locust	x			x			Buckthorn	x					
Cedar	x	x	x				Ceanothi (Ceanothus)	x	x		x	x	
(Cedrus							Cherries	x	x		x		
Chamaecyparis,							Chokeberries (Aronia)	x	x		x	x	
Libocedrus							Christmasberry (Toyon)	x	x		x	x	
							Common bladder-senne	x					
Crabapples	x	x		x	x	x	Coralberry		x		x	x	
Douglas-fir	x	x	x		x	x	Cotoneasters	x	x	x	x	x	
Firs (Abies)	x	x	x		x	x	Dogwoods	x	x	x	x	x	
Hackberries	x			x			Firethorns	x	x		x	x	x
Hawthorns	x	x	x	x	x	x	Fourwing saltbush	x	x				
Hollies	x	x	x	x	x	x	Hawthorns	x	x	x	x	x	x
Honeylocust	x						Hollies	x	x	x	x	x	x
Maples	x			x		x	Honeysuckles	x	x	x	x	x	x
Mountain ash	x	x		x			Junipers	x	x	x	x	x	x
Mulberries	x	x		x	x		Lilacs	x	x	x		x	
Oaks				x			Ninebark	x				x	
Osage-orange	x		x	x	x	x	Plums	x	x		x	x	x
Pines	x	x	x		x	x	Privets	x	x	x	x	x	x
Russian-olive	x	x	x	x	x		Roses	x	x		x	x	x
Spruces	x	x	x		x	x	Siberian peashrub	x	x	x		x	
							Silver buffaloberry	x			x	x	
							Snowberry		x			x	
							Sumac	x	x	x	x		
							Viburnums	x	x	x	x	x	

PLANTS FOR WILDLIFE FOOD PLOTS

Buckwheat
 Corn
 Domestic Sunflowers
 Grain Sorghum
 Millet
 Soybeans (in mixture)
 Wheat

REPRODUCTION

Many species of birds and other animals use windbreaks for reproduction. In one study in Texas, biologists found 25 bird nests in a $\frac{1}{2}$ mile field windbreak. In addition they also found it sheltering a covey of quail. In North Dakota, 81 nests were found per mile of field windbreak. To enhance nesting opportunities in windbreaks, a variety of tree and shrub species should be planted. This creates a desirable multistoried effect with a variety of niches for different wildlife species. Increasing the size of a windbreak planting, without providing for a greater diversity of habitat, generally increases the numbers of some species and not the numbers of different species.

Table 1 lists a few of the tree and shrub species which could be used to enhance the wildlife reproduction value of windbreaks.

FOOD

Some species of trees and shrubs have



Figure 4. Male dove feeding fledglings in the nest in a Minnesota windbreak. Doves make extensive use of windbreaks.

more value than others as wildlife food. Species of chokecherry, crabapple (figure 5), dogwood, firethorn, hawthorn holly, honeysuckle, juniper, locust, mulberry, privet, oak, *Viburnum*, and wild plum produce abundant amounts of fruit which can be used by wildlife. Another way to increase the value of a windbreak is to plant adjacent food plots. Availability of food for most species of wildlife is not a major concern during most of the year. However, food can become scarce during some portions of the year (often the most critical) in many areas. Properly designed windbreaks with food producing trees and shrub species and/or food plots with corn, sorghum, sunflowers, or millet can help wildlife survive periods of extreme cold and food scarcity.

Table 1 lists a few examples of trees and shrubs which could be used to enhance wildlife food values.

BLACK-CAPPED CHICKADEE
on crabapple

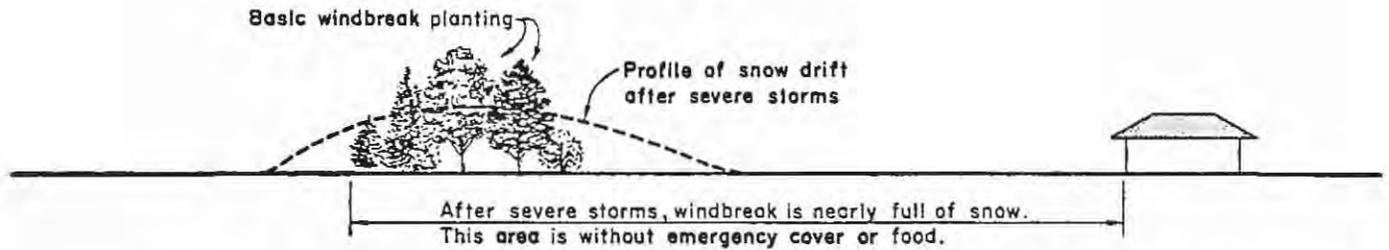


Figure 5. Both game and nongame species of wildlife benefit from windbreaks. The fruits of the crabapple trees relished by both types of wildlife.

ENHANCING THE WINTER WILDLIFE VALUES

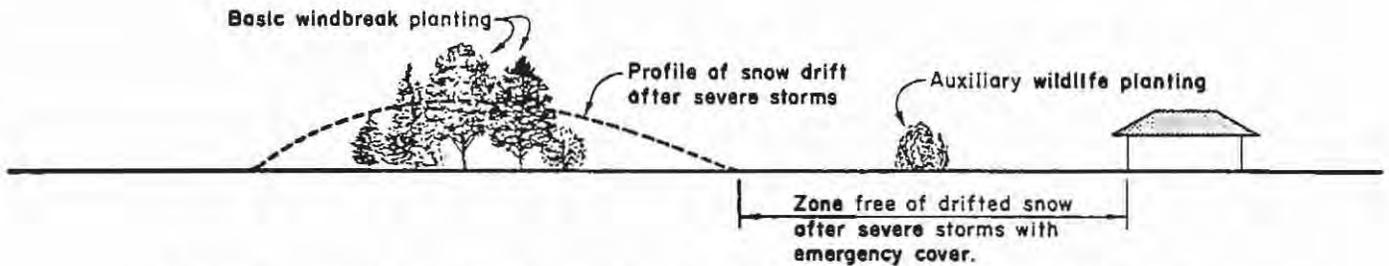
In most areas of the country, the winter and early spring months are the most critical for most forms of wildlife. Figure 6 illustrates in cross section the effect of adding various windbreak and wildlife habitat components to conventional windbreak plantings to enhance winter wildlife values in areas subject to severe snowstorms. The first illustration in figure 6 represents the typical windbreak planting in such areas. The additional three illustrations show how the addition of minor windbreak and wildlife components can enhance cover and food values. The best design for most areas is represented by the last illustration in the figure.

Views of two alternatives of approximately equal value for enhancing the winter wildlife habitat values of windbreaks are illustrated at the top of figure 7. Both are based on the principles illustrated in figure 6. The alternatives would apply to farmstead, feedlot, ranch headquarters, or residential windbreaks. However, the same principles could apply to field windbreaks and other woody plantings. These types of plantings, although designed for areas with severe snowstorms, will also significantly enhance the wildlife benefits of windbreaks in areas not subject to severe winter storms and drifting snow.



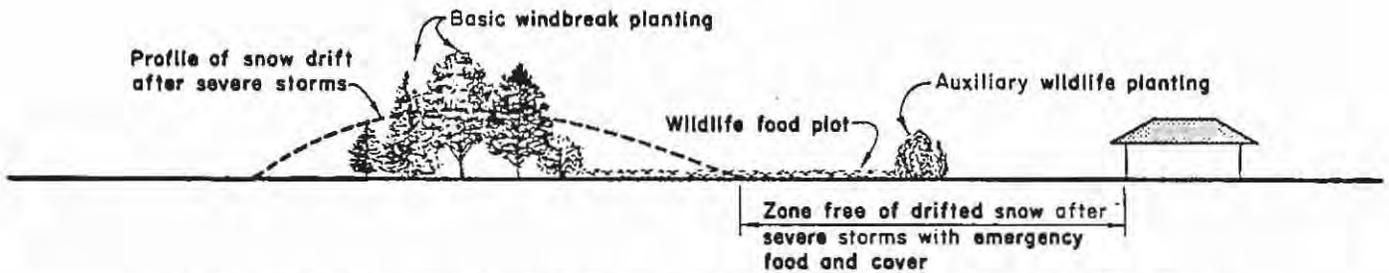
CROSS SECTION OF CONVENTIONAL WINDBREAK PLANTINGS

Areas subject to severe snow storms



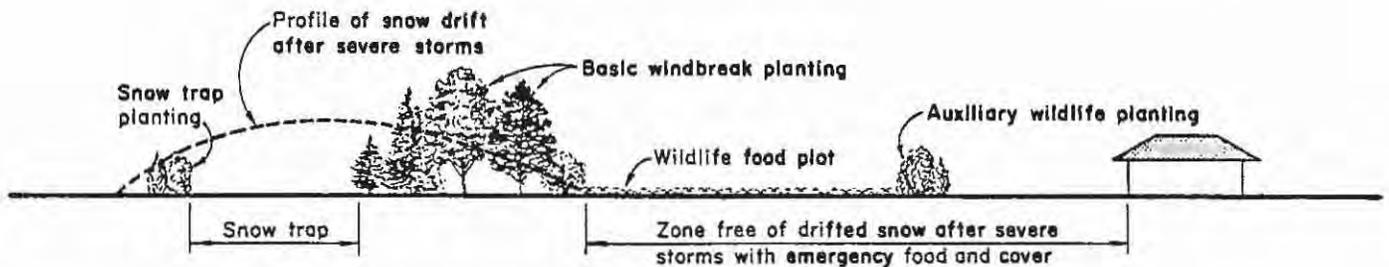
CROSS SECTION OF CONVENTIONAL WINDBREAK PLANTINGS WITH EMERGENCY COVER

Areas subject to severe snow storms



CROSS SECTION OF CONVENTIONAL WINDBREAK PLANTINGS WITH EMERGENCY FOOD AND COVER

Areas subject to severe snow storms

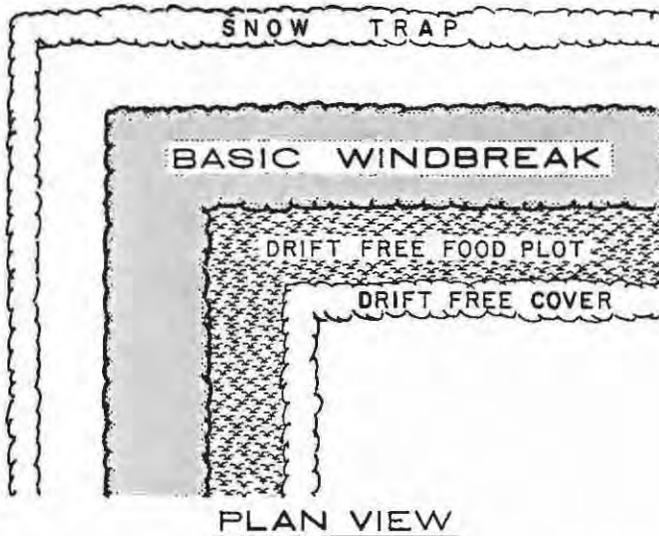
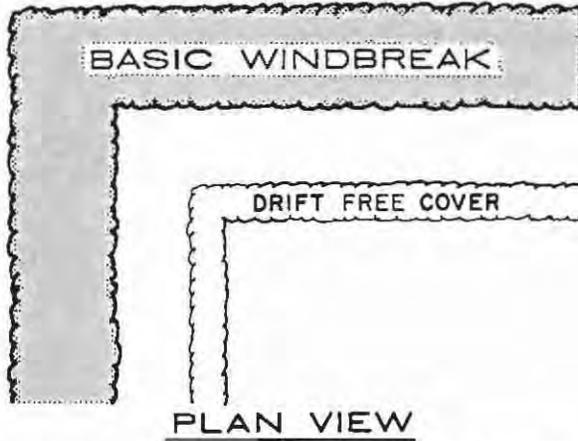


CROSS SECTION OF CONVENTIONAL WINDBREAK PLANTINGS WITH SNOW TRAP TO PROVIDE ADDITIONAL EMERGENCY FOOD AND COVER

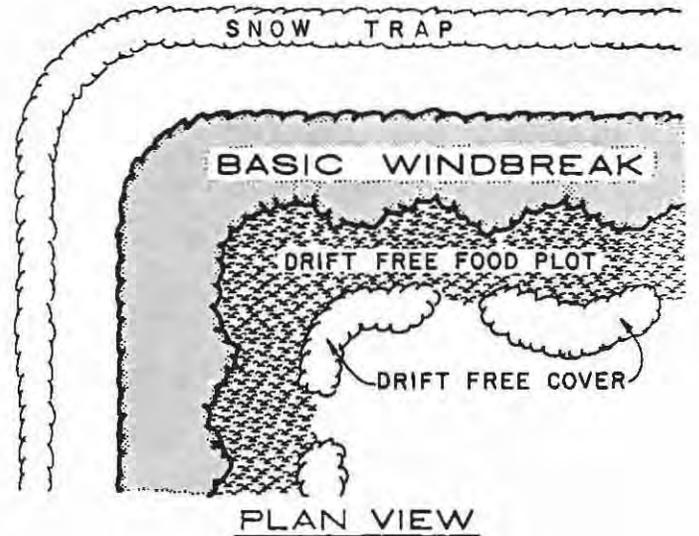
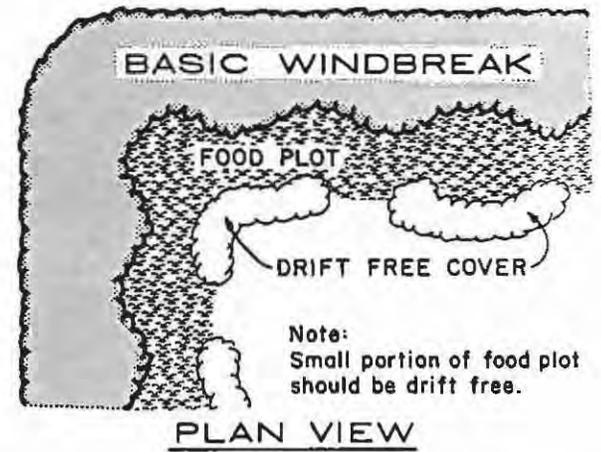
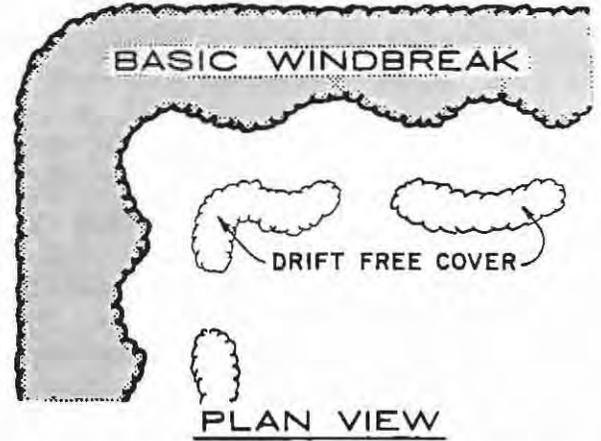
Areas subject to severe snow storms

Figure 6. Enhancing the winter wildlife values of windbreaks.

ALTERNATIVE 1



ALTERNATIVE 2



Note:

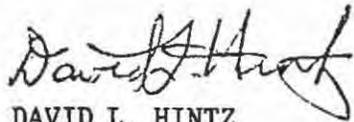
Both alternatives are approximately equal for enhancing wildlife values. Alternative 1 is the least expensive and the easiest to establish and maintain. Alternative 2 offers more opportunities to incorporate Landscaping principles into the design of plantings to improve appearance. It also provides greater opportunities to use a wider variety of trees and shrubs.

Figure 7. Two alternatives for accomplishing principles illustrated in figure.

SUMMARY

Properly designed windbreaks and other types of woody plantings can have a significant impact on the amount of cover, food and reproduction of many forms of wildlife. This includes both game and nongame species. Often the benefits to wildlife can be significantly enhanced by making relatively minor adjustments in windbreak design. The highly protected environment provided by basic windbreak plantings can protect valuable landscape plants and enhance

their value for wildlife. The addition of food plots can attract wildlife by providing food during critical periods of the year. The use of a variety of trees and shrubs can provide for abundant numbers and a wide variety of wildlife species.



DAVID L. HINTZ
National Windbreak Forester
Ecological Sciences Staff