Fact Sheet 3.1
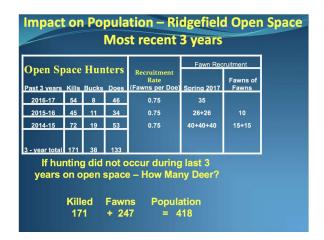# Are there conflicting population theories?

There are conflicting theories regarding the relationship between deer population and hunting.

Howard Kilpatrick (DEEP biologist)

Mr. Kilpatrick espouses a "balloon theory," which predicts a sudden increase in the deer population should a town's hunt be paused. Kilpatrick cites, "how quickly a deer population can grow if unchecked by hunting" in just one season. Kilpatrick has created a series of charts and graphs demonstrating that each surviving doe produces a specific number of fawns and within a season or two the deer population will exponentially "balloon." Below are two of Mr. Kilpatrick's tables, which are often distributed to communities that are undergoing hunt reassessments.

Table 3.1- 1

Table 3.1-2 provides an example of how quickly a deer population can grow if unchecked by hunting (assuming normal mortality) using the estimated size of the Ridgefield doe population in Table 3.1-1.

Dr. Edward Faison (Highstead)

Dr. Faison disagrees with Mr. Kilpatrick's theory, as follows: "The first table assumes that all of the adult does that were killed in the hunt would have otherwise been available to reproduce (i.e., 46 does were killed in 2016-2017, so 46 is multiplied by 0.75). But the likelihood that all 46 of those does surviving the winter, crossing the roads of Ridgefield, disease, and coyote and bobcat attacks is very low.

The second table assumes a 90% survival rate of does and female fawns to breed the following year. However, survival rates of fawns are typically much lower (30-40%). I don't understand why a 90% survival rate was used."

Dr. Faison continues: "If the hunt is suspended for a year, you might see a modest increase in deer the next year, but I doubt there would be "population explosion" as a result. Does have 1-3 babies per year. It would be interesting and probably worthwhile to test the effects of stopping a hunt on deer numbers. Statewide and in Southwest CT, deer populations peaked between 2000 and 2005 and have since declined by about 1/3, and have stabilized. Deer populations are not continuing to rise, but have actually declined over the past 15 years, independent of management (hunting)."

Table 3.1-2

Dr. Oswald Schmitz (Professor of Population and Community Ecology, Yale University School of Forestry and Environmental Studies)

Dr. Schmitz says, "The *balloon theory* is merely a restatement of a classic, well-known principle in population biology in which species populations when low in abundance (far below their carrying capacity) rapidly rise in abundance because they are able to survive and reproduce well (due to low competition).

It's equivalent to compound interest growth of capital. But as with compound interest growth, the available capital (principle and interest) takes some time to increase in amount. The capital (in this case deer) cannot explode or balloon in a single year. It takes 3-4 years for that to happen. So, it is possible to have longer intervals between deer hunts (say 2-3 years between hunts)."

The Bottom Line

While DEEP puts forth the position that a lull in the Ridgefield controlled hunt would result in an exponential surge in deer population (balloon effect), other scientists contest this position stating that there could be 2-3 years between hunts before this would happen.