

## Southern Appalachian Creature Feature Podcasts

### Frog hibernation

Greetings and welcome to the Southern Appalachian Creature Feature.

Cold weather has descended upon the Southern Appalachians and on some mornings, perhaps most mornings, soft, warm flannel sheets make the notion of hibernation seem incredibly appealing.

Talk of hibernation brings to mind bears curled up in a den until spring, but what about animals that aren't warm and fuzzy, like frogs? They've no insulation and their body temperature rise and fall with the outside temperature – how do they make it through the winter?

Some terrestrial frogs will burrow into the earth for the winter, while those less adept at digging will seek shelter in the depths of leaf litter or in the deep nooks and crannies of downed logs or peeling tree bark. Aquatic frogs spend their winter on the bottom of lakes, ponds, or other bodies of water. And yes, when the temperature goes below freezing, the body temperature of these animals goes below freezing. While ice crystals may form in some parts of the animal's body, important parts have an elevated glucose level which acts as a natural anti-freeze, protecting vital tissue from freezing.

But wait a second. While tadpoles breathe through gills, frogs lose their gills and breathe with lungs, right? How do aquatic frogs, which spend the entire winter underwater, breathe? Simple. They don't. With the exceptionally low metabolism that comes with winter, these frogs don't need much oxygen, so little in fact that their needs can be met by getting oxygen from the surrounding water through their skin.

For WNCW and the U.S. Fish & Wildlife Service, this is Gary Peeples.