

PICTURE HORIZONTAL DRILLING/HIGH-VOLUME HYDROFRACKING (HD/H VHF) IN YOUR STATE FORESTS:

HD/HVHF of shale formations is done in one-square-mile drilling units. Each drilling unit requires five-acre drilling pads and two acres of roads and pipelines

Each well pad will contain between six and ten wells. Each well on the pad, plus pipeline construction, requires ~900 truck trips each way.

Each well takes three weeks to drill and three weeks to hydrofrack. Hydrofracking requires the full-time operation of 25 or more truck-mounted diesel-driven compressors operating 24/7; each pad will therefore take about a year to complete, with diesel-driven equipment operating virtually all the time.

Each hydrofracked well requires an average 5 million gallons of fresh water, plus sandstone proppants and ~50,000 gallons of chemicals. (That's over 30 million gallons of water and 300,000 gallons of chemicals per pad.)

One-third to one-half of the fracking fluid returns to the surface as "flowback", meaning ~15 million gallons of polluted water returns at each site, for which there is no treatment besides dilution at sewage treatment plants and release into other waters.

The Draft Strategic Management Plan for State Forest Management (2010) relies on the 2009 Draft Supplemental Generic Environmental Impact Study (dSGEIS) to evaluate the impacts of gas drilling in State Forests. But the dSGEIS does not address

- Forest fragmentation
- Wastewater treatment
- Storm water runoff
- Cumulative impacts of built-out gas fields and infrastructure
- Frequent and repeated water withdrawals
- The permanent nature of HD/HVHF facilities
- Cumulative impacts of drilling in multiple gas-bearing formations
- Effects of airborne pollutants on tree health and growth
- Impacts on NYS residents who utilize State Forests for recreation
- The consequences of spills of fracturing fluids or wastewater

You can help. Get involved. Find an organization near you at:

www.DamascusCitizens.org

YOUR STATE FORESTS UNDER SIEGE BY THE GAS INDUSTRY

**HIKERS-ANGLERS-BIRDERS-HUNTERS
NATURE LOVERS
CROSS COUNTRY SKIERS-SNOWMOBI LERS
MOUNTAIN BIKERS**



Greenlick Compressor Station Susquehannock State Forest

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION OPENS PUBLIC FORESTS TO SHALE GAS DRILLING

WHEN DOES A FOREST STOP BEING A FOREST?

When it's fragmented by well pads, roads, pipelines, compression stations, powerlines and other gas infrastructure.

Fragmentation

- degrades habitat and diversity for plant species
- reduces forage and breeding grounds needed by animal species
- increases roadside animal mortality
- hinders the free movement of wildlife, causing the isolation, inbreeding and genetic impoverishment of many species
- hastens introduction of alien plants and invasive species



Allegheny, PA Photo: Raye Levine

- reduces the health of plant, bird and animal populations that are dependent on continuous forest cover
- disturbs drainage patterns and increases sediment loads to streams

When it ceases to be a purifier/buffer/stabilizer of economic activity and becomes instead a source of water, air, light and noise pollution.

- water and soil contamination by hydrofracking chemicals are well-documented in PA forests and in the West
- herbicide use on pads affect all species in the food web



- unreturned hydrofracking wastes threaten to migrate through underground strata for the indefinite future
- well construction, hydrofracking, common pipeline leakage, and the operation of compressor stations pollute forest air with carbon monoxide, nitrous oxides, particulate matter, volatile organic compounds, heavy metals, and ground-level ozone
- stormwater run-off from disturbed cover silts up stream, lowering water oxygen levels and killing fish

When it can no longer provide the ecosystem services that human society depends on

- large water withdrawals for hydraulic fracturing reduce aquifer recharge capacity, causing downstream flooding
- Ground-level ozone and other gases impair the CO₂/oxygen cycle, reducing forest growth
- Impaired forest growth reduces the capacity of the forest to serve as a sink for CO₂, ammonia, and tropospheric ozone
- disturbed sites and the clearing of trees releases carbon into the atmosphere, worsening climate change
- industrial zones fail to provide people with spiritual nourishment, exercise and a sense of belonging to nature



14.5 million gallon fracking reservoir needs to be refilled every third fracking. Note red pickup for scale.