

# Land Cover and Land Use

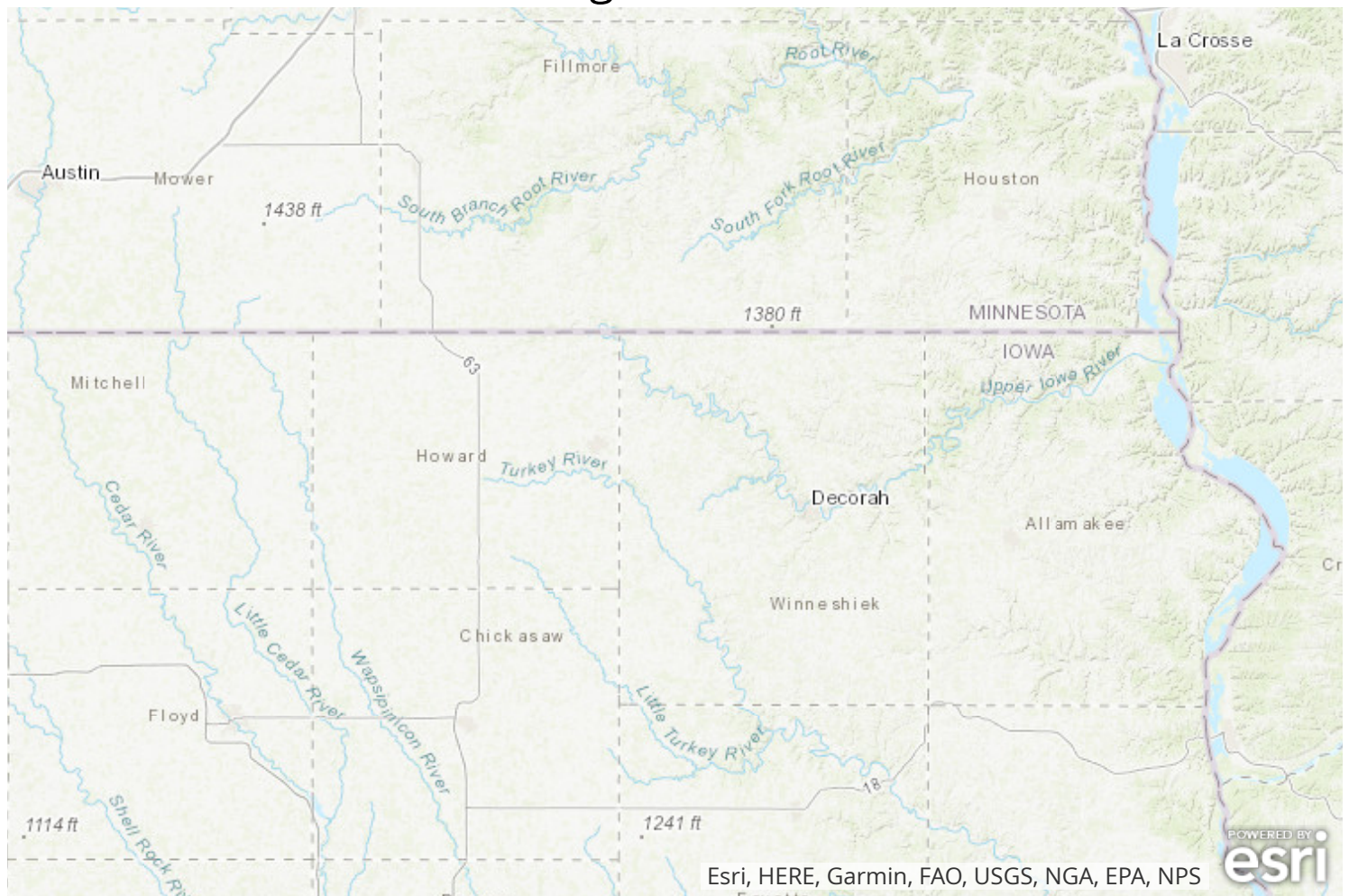
*This story was made with [Esri's Story Map Journal](#).  
Read the interactive version on the web at <https://arcg.is/08jePa>.*



Photo courtesy of Larry Reis

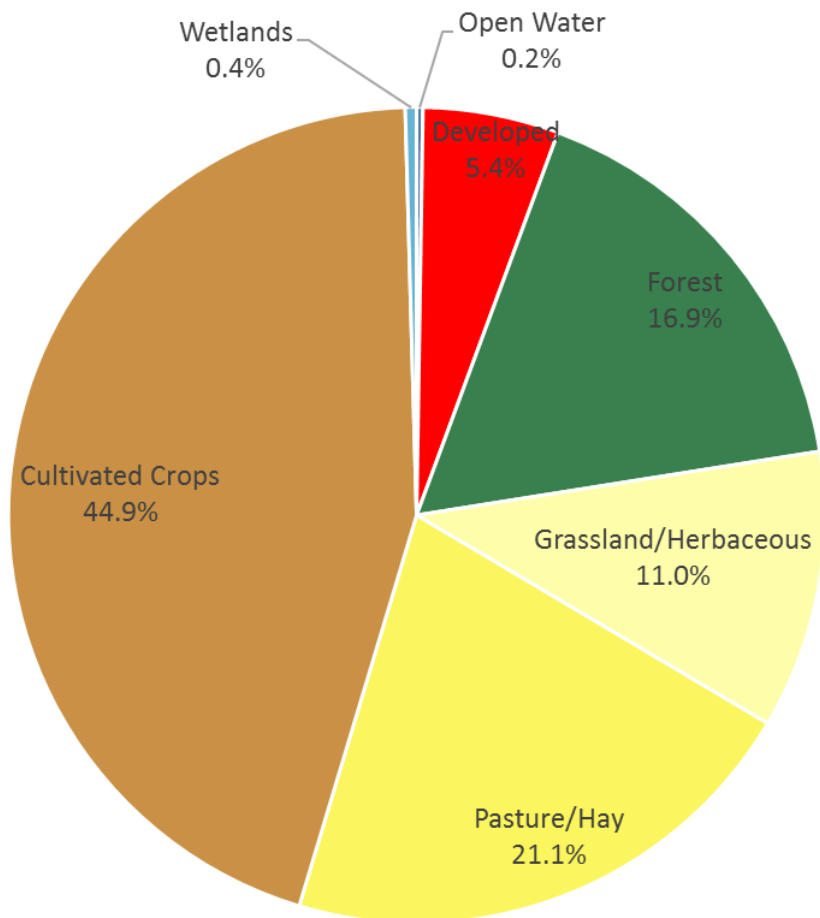


# Historical Land Cover Change



USGS National Land Cover Database provides information regarding land cover in the UIR Watershed every five years. The most recent version of this data set that has been analyzed and released is from 2011. In 2011, approximately 45% of the land in the UIR Watershed was in agricultural production, with the greatest density of crop acres located in the western and southern portions of the watershed. This is low compared to the State of Iowa. The UIR Watershed contains more grassland and woodland than most Iowa watershed, which is attributed to the steep terrain, especially along the river and in the northern and eastern areas of the watershed. Grassland and pasture are estimated to encompass 32.1% of the watershed, forest/woodland 16.9%. Forest in the watershed is primarily deciduous and are concentrated along waterways and steep slopes in the eastern half of the watershed. Land cover remained relatively unchanged between 2001 and 2011, with only a slight decrease in the number of grassland acres of about 0.7% and correspondingly a slight increase in Row crops by about 0.7%. ([NRCS Rapid Watershed Assessment](#)). Changes from 2011 to 2016 have yet to be analyzed.

## Upper Iowa River Land Cover 2011



Upper Iowa River Watershed Land Cover 2011

# Land Ownership and Use



Land ownership and tenancy of farmland can greatly impact shifts in land use and conservation adoption. Understanding land ownership trends helps inform strategies, outreach and education language and methods, programming, and the selection of target audiences. An analysis of the county parcel data provided by Allamakee, Winneshiek and Howard county GIS Specialists shows approximately 98% percent of the land acres in the Iowa portion of the UIR Watershed are privately owned and managed. The UIR Watershed contains approximately 1,300 farms with an average size of about 300 acres (This number is based on an estimate of number of farms in the watershed by percent of the county in the UIR Watershed in relation to the County Profile data included in the 2012 Census of Ag Data). This is less than the average farm size in Iowa of 345 acres. Smaller farms equates to greater numbers of farmers controlling land use within a the watershed. Farm size can influence implementation of conservation practices, both positively and negatively. For example, smaller farms may reduce the loss of woodland and grassland acres along fence lines and property borders resulting in, a greater overall diversity. A greater number of landowners in a watershed provides more opportunities for adoption of conservation practices by a greater number of producers and therefore could result in a greater number of producers actually implementing priority strategies for improved watershed health. In contrast, laws that prohibit private landowners from backing up water onto adjoining land could prevent a landowner with limited acres from installing a pond or wetland where it might be most beneficial. An increased number of landowners also creates a need for increased outreach and education stressing limited technical and financial resources.

Research conducted by Iowa State University Extension and Outreach of Iowa farmland ownership and tenure over a 35 year period identified trends that further increase the understanding of land use and ownership influences on land use. The researchers note the following highlights. (The full report is available at the [Extension Store website](#).)

- 82% of Iowa farmland is owned free of debt, up from 62% in 1982 and 78% in 2012.
- 60% of farmland in Iowa is owned by people 65 years or older; 35% by 75 or older.
- 47% of Iowa farmland is owned by women; 13% of the women are over 80 years of age.

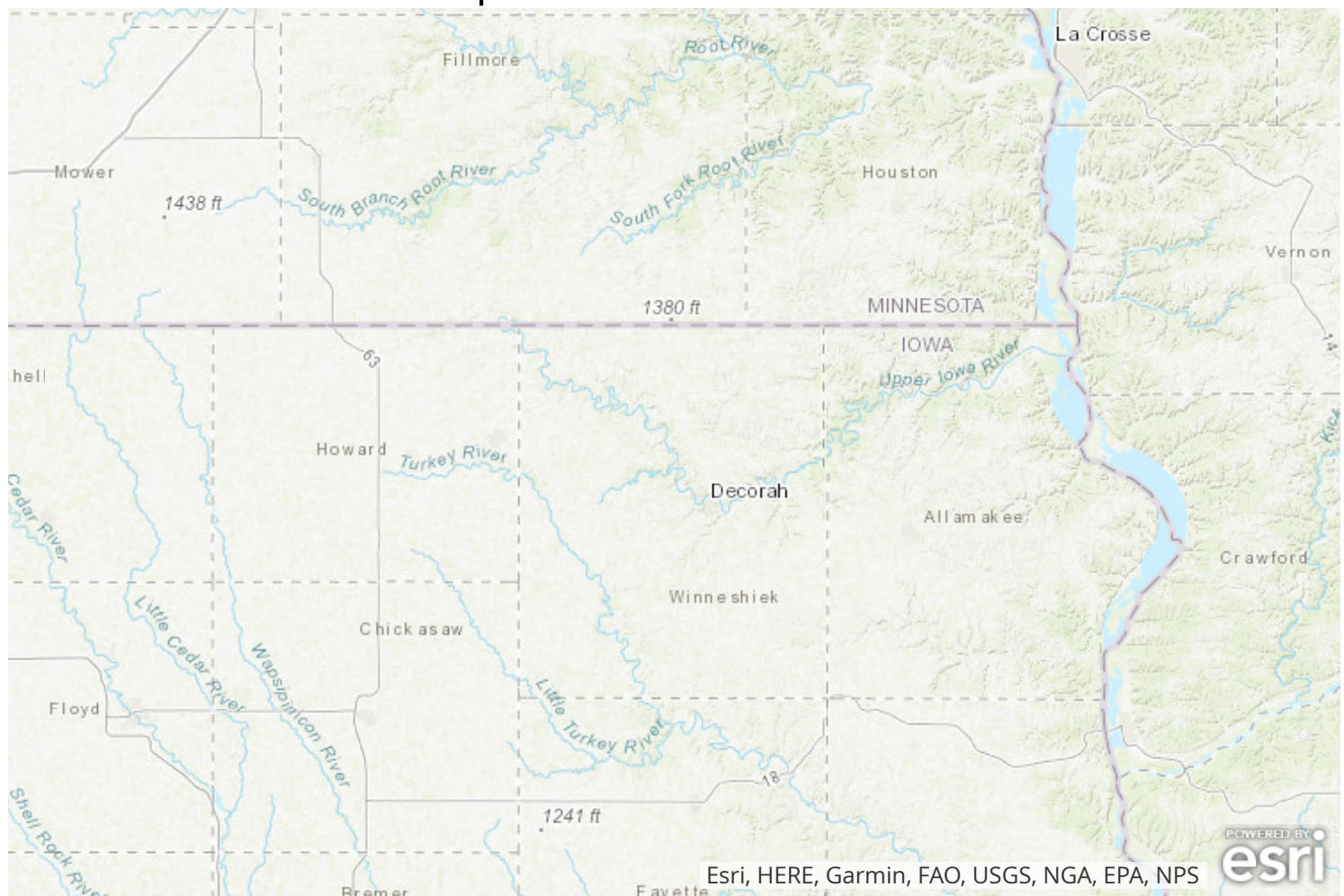


- 53% of Iowa farmland is leased.
- 29% of Iowa farmland is primarily owned for sentimental reasons.
- There is a continuous shift away from sole ownership and joint tenancy to trusts and corporations, which accounted for 20% and 10% of land respectively in July 2017.
- Over half of Iowa farmland is owned by someone who does not currently farm, of which 34% is owned by owners with no farming experience, and the remaining 24% by retired farmers.
- 80% of Iowa land is owned by full-time Iowa residents, 7% part-time residents, and 13% by persons or entities not living in Iowa.
- 30% of Iowa's land uses inputs purchased from a cooperative, market products through a co-op, and uses custom services of agricultural cooperatives.
- 4% of Iowa farmland is currently growing cover crops.
- 20% of farmland owners expressed willingness to pay a portion of planting costs to encourage more adoption of conservation practices on the land they own.

These trends in land use, although not specific to the UIR watershed, should not be ignored as they closely align with research conducted in the UIR Watershed. They can also be considered in relation to questions from the UIR Watershed survey such as those related to interest in conservation planning assistance, obstacles to implementation of conservation practices, attitudes and interest in participation or learning. Results of the UIR Watershed Survey can be found [here](#).

Photo courtesy of Jessica Rilling

## Public Land Ownership



The majority of the land parcels in the UIR Watershed that are in public ownership, which collectively totals only 2% of the watershed, are utilized as natural or wildlife areas or parks, trails, or for access to streams, the UIR or other

natural amenities. These properties are primarily managed by city, county and state entities, with the largest public ownership held by county conservation boards in each county, the Iowa DNR and the City of Decorah.

## Livestock Farming and Production



There are different types of livestock farming and production operations in the UIR Watershed, including confined animal feeding operations, open feedlots, and pasture operations. Like any type of land use, these operations can have a positive and/or a negative impact on watershed resiliency. For example, the pasture and hay associated with livestock can provide important year-round vegetative cover on steep slopes and in other key landscape positions. Livestock waste management can be complicated and challenging in this watershed, especially along streams, rivers and in karst areas of the watershed where sinkholes and losing streams are abundant and increase surface and groundwater interchange. Iowa has permitting, construction and operations requirements for manure control and land application for feedlots, which become more stringent for operations over 300 animal units and even more so for operations over 1,000 animal units. To find out more about open feedlot regulations checkout the following links.

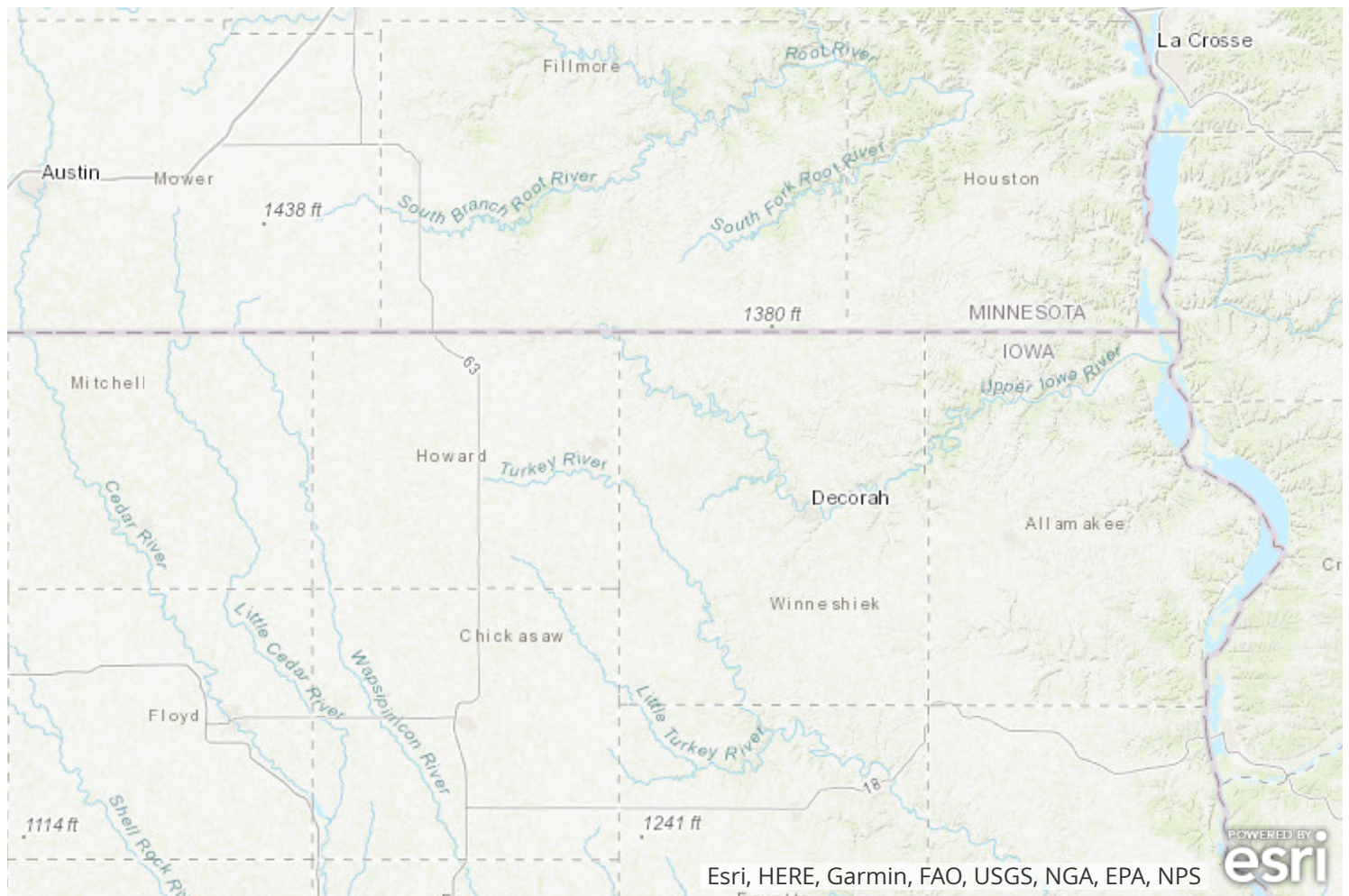
[Small Open Beef Feedlots in Iowa: a Producer Guide](#)

[Environmental Regulations for Open Feedlots](#)

Photo by Jessica Rilling



# Livestock Production Growth



Although the majority of the livestock operations in the UIR Watershed have total numbers of animal units below 300, according GIS analysis using Iowa DNR data, between 2010 and 2017 there was significant growth in the number of confinement and open feeding operations in the UIR Watershed. In 2010, the Upper Iowa River Watershed contained 67 registered confinement feeding operations compared to 100 in 2017. In 2010 the UIR Watershed had 76 total animal feeding operations (Shown by the green point in the map) compared to 113 in 2018 (Illustrated as a pink square in the map). This is a 49% increase in less than ten years. In 2017 and estimated 33% of confinements in the watershed were over 1,000 animal units. GIS analysis using Iowa DNR data from the Animal Feeding Operation Program also suggests the total number of livestock (not including chickens) for the watershed has increased significantly in less than a decade.

Interest and implementation of grass-based livestock systems may also be higher in the UIR Watershed than others areas of Iowa as evidenced by recent participation in a Northeast Iowa RC&D grass fed livestock marketing initiative that promotes the benefits of grass based systems for the animal, people and the land. More information about this initiative can be found [here](#)





Photo courtesy of Jessica Rilling