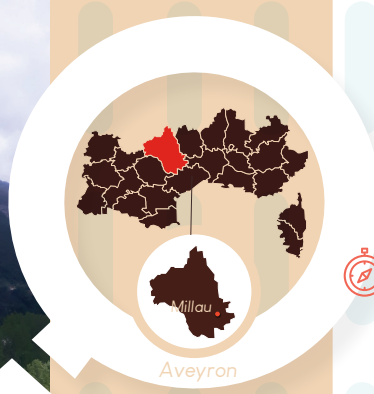




The confluence of the Tarn (left) and Dourbie rivers at the Pont Cureplat just outside Millau, with the Causse Noir plateau in the background.



Millau 1982, 1994

Between the Tarn and the Dourbie

Location: The town of Millau sits at the exit of gorges carved through the Causses plateaus by two rivers (Causse Méjan, Sauveterre and Noir for the Tarn River, Causse Noir and Larzac for the Dourbie River). The source of the Tarn is on **Mont Lozère**, to the north of Millau, while the **Dourbie** is fed by springs in the foothills of **Mont Aigoual** to the south. Mont Aigoual is also the source of the **Jonte River**, which joins the Tarn upstream of Millau. Both the **Tarn and the Dourbie meet** just outside Millau at the Pont de Cureplat. The Tarn then skirts the town centre, to its right, and then continues on to join the Garonne River at Moissac, in the Tarn-et-Garonne Department. Millau town centre is also ringed to the north by hills (Puech d'Andan culminating at 802 m) where various **streams** flow down and through the town (the four largest ones are called the Troussy, St Euzebit, Ladoux and the Sainte Marthe). While the historic centre sits above the Tarn River floodplain, **lower-lying neighbourhoods and districts**



Past floods and today's regions in the Mediterranean Arc



Millau from the Pont Lerouge, with the historic watermill (left) and water sports complex (centre) where the Tarn splits into two streams.

on the plain, such as the Plaine de la Maladrerie on the left bank and the Puits de Calès mixed-development zone on the right bank, are highly prone to flooding. These areas consist of housing, mostly with at least two floors, business premises (mainly workshops and small business units) and various public amenities.



Two huge floods in 12 years 1982

The first flood happened on **7 to 8 November 1982**, reaching a peak of **9.20 m** at 2pm on Monday 8 November. It was triggered after heavy rainfall filled the Tarn and Dourbie (in excess of **375 mm fell on Mont Lozère** and more than **475 mm on Mont Aigoual in 48 hours**). The water reached the **decks** of the only two bridges that were built at the time. These were the **Pont de Cureplat** and the **Pont Lerouge**, upstream next to an old watermill.

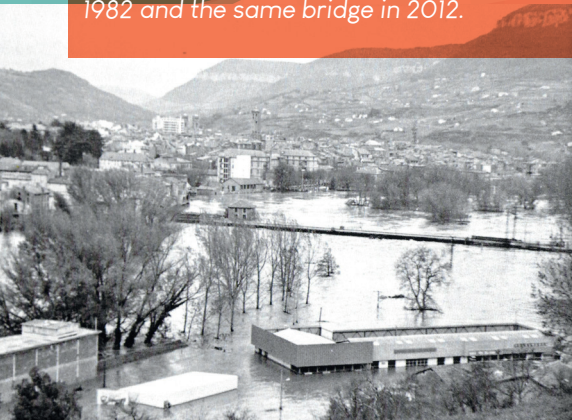
The ground floors of many **homes** in the **low-lying districts** were flooded, as were the business and **retail parks** where there was extensive damage to facilities such as the Montlaur supermarket and the Alric tannery company where the water reached the roofs of many **depots and workshops**. La Maladrerie outdoor activity centre was also badly hit.

Thankfully, there was **no loss of life**.

Official records note:

- **1,100 flood victims** all-told (including 1,000 people evacuated),
- A total of **150 apartments flooded**,
- **115 businesses hit** by damage to property and premises putting their continued existence under threat.

The Pont Lerouge and watermill above the La Maladrerie Plain, flooded on 8 November 1982 and the same bridge in 2012.



Rue Antoine-Guy in 1982 and 2012



The rabbit barn near Rue Antoine-Guy. Photo credit: Le Journal de l'Aveyron



Historic floods

Extensive records and numerous eye-witness accounts of flooding on the Tarn and Dourbie rivers (often both together) date back to the **Middle Ages**.

The most famous flood occurred on **12 to 13 September 1875** when an enormous **iron bridge** built on the site of the current Pont du Larzac, **was swept away**.

The biggest floods in the **1900s happened in March 1930** (which devastated the Upper Tarn), December **1953**, January **1955** and December **1959**. Until **1982**, the last flood that most of the local people remembered was that of **31 October 1963**.

The Canat factory at Ondes and a garage on Rue de la Croix de Gaven in 1982 and 2012

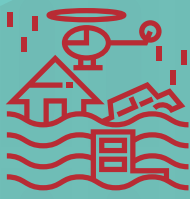


Photo credit: "Millau, the flood of the century, 30 years after: 1982-2012" /Julien Holdrinet

The "Journal de l'Aveyron" newspaper published these accounts:

"One of the places that was hit hardest was the Rue Antoine-Guy engulfed by unusually fast and furious torrents several metres deep. The shops at the bottom of the Rec were devastated."

*"Right next door, a **rabbit barn**, plucked up by the floodwaters, got lodged between the wall and the factory. The owner came to see what was left of his animals and recovered them."*



A second major flood! 1994

Between the 1982 flood and that of 5 November 1994, the riverbed of the Tarn was altered many times, particularly when the **Pont du Larzac** was built (1988-1989) with various access roads where the iron bridge had once been. These works **changed land use on the floodplain** with earthworks to protect amenities from flooding between the Pont de Cureplat and downstream from the Pont Lerouge bridges.

Also, building the **Pont du Larzac** to replace the old iron bridge complicated the path of the riverbed in flood conditions by **obstructing** part of the flood wave upstream and creating a **whirlpool** downstream that weakened the riverbanks. The 1994 flood occurred after **3 days** of rain in the **Upper Tarn catchment** (473 mm in Cassagnas in Lozère) as well as on the **Mount Aigoual range**. The flood waters were **slower to rise** (37 cm per hour) and **less high**, peaking at 8.60 m compared to the 9.20 m record in 1982. Despite worse flooding on the Dourbie than in 1982, the flow of water in the Tarn River at the Pont Lerouge was roughly **2,200 m³/s** with a 50-year recurrence interval (compared to **2,500 m³/s** with a **70-year recurrence interval in 1982**).

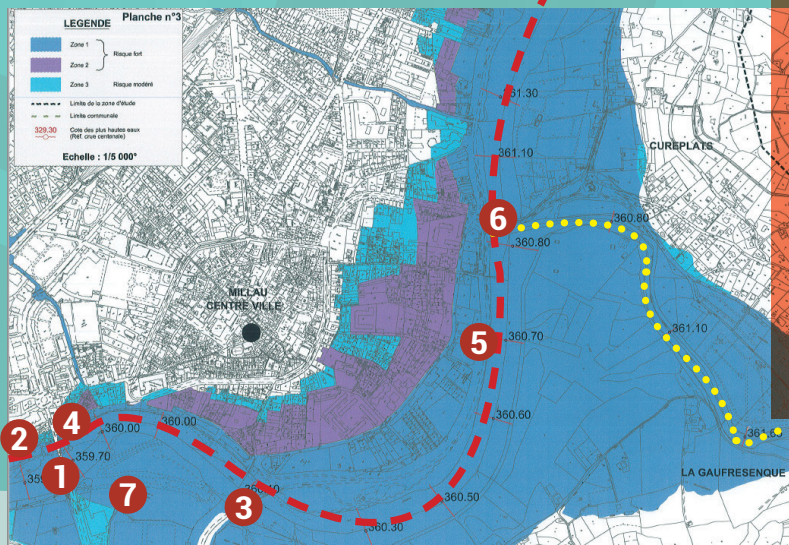
This difference was also partly due to riverbed enlargement works.

Nevertheless, there was again **extensive damage** along sections of the river already hit 12 years ago. Once again, thankfully, **no lives were lost**. While there was less upheaval for business, public and leisure amenities, such as the many campsites upstream of the Pont de Cureplat bore the brunt of the floods.

Damage to the roads also amounted to some 900,000 euros.



The Alric Tannery Company, then based in Ondes, once again flooded but less so than in 1982. Photo credit: "Le Journal de Millau".



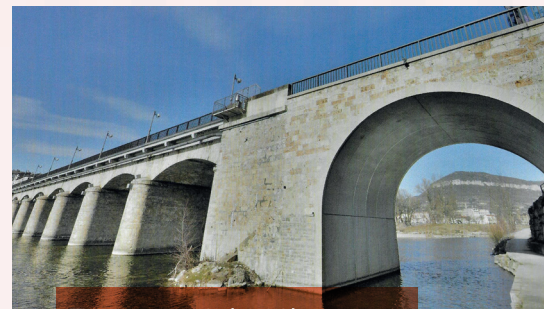
The course of the Tarn River ————
 The course of the Dourbie River
 1 Pont Lerouge
 2 Les Ondes
 3 Pont du Larzac
 4 Rue Antoine-Guy
 5 Rue Croix de Gaven
 6 Pont de Cureplat
 7 La Maladrerie
 Tarn catchment PPRi base map

Millau takes action

After this latest flood which thoroughly surprised the town's residents, Millau Town Council undertook a **series of measures** to reduce flood risks.

Firstly, it cleared and widened the riverbeds on the Tarn and Dourbie to **free up the flow** of water and lower the water level. Several tasks were subsequently carried out by various partners.

- An additional **arch on the Pont Lerouge bridge was opened** in 2000 (in conjunction with Aveyron Departmental Council).



The new arch (right) open on the Pont Lerouge. Photo credit: Julien Holdrinet



My team and I are firmly committed to protecting the living conditions and quality of life in Millau. That's why, with government agencies and ministries, and our efforts to update the Flood Risk Prevention Plan, we are working on options to redevelop and reconfigure flood-prone districts in the town, to make them fully flood-resilient yet retaining links with the town centre, the Tarn River and the wonderful environment that we have.

Emmanuelle Gazel, Mayor of Millau.

- .../... ►
- Excavation works to build a new channel at the Île de la Maladrerie, in 2009. It was designed for minor and moderate flood events, to reduce coarse sediment loads in the Tarn River. The channel can be seen on the wide-angle photo on page 1. It is also used as a course for water sports.
 - In partnership with the town council, **Millau Grands Causses Intermunicipal Council**, reinstated the Dourbie riverbed in 2003 by **reopening Les Dourbiettes**. This area, on the left bank of the Dourbie, just before the confluence used to be crossed by shifting branches of the river that were then filled in the 20th century. Re-opening them gave the Dourbie "**breathing space**" and calmed the river on its approach to Millau.

In terms of **crisis management**, the town's only defence used to be sirens and displaying river level readings. Now, it has its **own rapid alert flood warning system** so that local residents in 470 at-risk homes can take the necessary steps for their safety. The town council also regularly updates its **PCS** (local emergency action plan) with exercises in flood-prone areas, such as **campsites**, where there is a threat to human life.

Finally, Millau also reviewed its **DICRIM** (municipal information document on major risks) in 2016.

As an extra measure, the intermunicipal council also set up a study group and think-tank on flooding (GERI) in 2007. All stakeholders are invited to be part of this group, including the **Upper Tarn River Basin Association**, created in 2018.

Other proactive partners

The French government introduced a flood risk prevention plan for the Tarn (PPRI) which was adopted in **June 2004**. It takes the Tarn floods of **1982** as its **benchmark, or basic-stage flood**. For the **Dourbie**, the biggest recorded flood was on 31 October **1963** but this was not a one-hundred year flood event. Hydraulic modelling was used to assess the PPRI **for the Dourbie**. It also includes streams and is currently **being reviewed** for the Tarn River section.

The French government has also installed a flood warning system in the Upper Tarn drainage basin called "**Vigicrue**". From the source of the Tarn to Millau, there are around ten monitoring stations along the Tarn, the Jonte, Tarnon, Mimente and Dourbie rivers. **The Garonne-Tarn-Lot Flood Forecasting Unit** has also produced **maps** of potentially flood-prone areas (**ZIPs**) that show the areas of land subject to flooding depending on depth readings recorded at the Millau monitoring station gauge. This monitoring station to aid decision-making for operational crisis management has also been cross-referenced with other infrastructure in the local area.

Millau Grands Causses Intermunicipal Council has outsourced the management of its floods, rivers and wetlands management plan (**Gemapi**) to the **Upper Tarn River Basin Association (SMBV)**. This association represents 9 of the 59 municipalities in Lozère, Aveyron and the Gard, and is the lead partner for **plans to establish a flood action programme (PAPI)** signed in **2019**.

The **PAPI for the Upper Tarn** focuses on two key priorities: **Knowledge and awareness** to foster a risk culture and reducing the vulnerability of property and people to flooding. As such, the Upper Tarn SMBV is also installing official **flood level markers** and is undertaking **flood vulnerability surveys** with **homeowners and businesses**. These provide recommendations, measures and advice on what to do in the event of a flood and how to protect yourself.

The Upper Tarn SMBV also manages a river contract which contains a section on **flood awareness adapted to year-3 primary school classes** throughout the river basin area. This comes with a model to aid learning.

Finally, Millau has a very active number of voluntary sector organisations thanks to the **Tarn and Dourbie Residents Association** formed after the 1994 floods. The association has roughly fifty members and organises aid to those affected by flooding, as well as informing people about flood risks. In 2012, it published a **book of photographic recollections** with Millau Town Council for the 30th anniversary since the **flood of 1982**.

Markers indicating water levels from floods in 1875, 1982 and 1994 and the La Grave car park. The marker for 1875 is not at its actual height but is there purely for information purposes.



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