QGIS Application - Bug report #4079
(Some) features with invalid geometries not labelled

2011-07-14 02:19 AM - Alister Hood

Status:	Closed			
Priority:	Normal			
Assignee:				
Category:	Labelling			
Affected QGIS version:	master	**Regression?:**	No	
Operating System:		**Easy fix?:**	No	
Pull Request or Patch supplied:	No	**Resolution:**	fixed/implemented	
Crashes QGIS or corrupts data:	No	**Copied to github as #:**	14062	

Description

I had the attached "SW overland flow catchments" shape file in a project and found that when I tried to label it one of the largest catchments was not labelled.

I right-clicked on it and did save-as to create a copy. Testing I found that the same label was aways missing in the "SW..." file, but never missing in the other file.

I deleted the attributes from the "Descriptio" field in both files, then saved them and the project.

Now when I test with this project or with a fresh project, they have swapped around: the same label is always missing in the "temp" shape file, but not in the "SW..." file.

What is causing this? (Answer = invalid geometries; refer to Larry's comment)

History

#1 - 2011-07-14 02:24 AM - Alister Hood

> *N.B. also these files are quite good to demonstrate another problem with the label placement. Turn both layers on: why do the labels end up in such strange locations?*

This is resolved by enabling the option "features don't act as obstacles for labels"; I was misunderstanding something before ;)

#2 - 2011-07-14 04:06 PM - Alister Hood

An interesting thing which might be related:

Using the "shapefile viewer" plugin, the shape with the missing label does not show up, although it does show up for the other file where the label isn't missing. But one of the other shapes doesn't actually show up for either file...

#3 - 2011-07-14 04:21 PM - Alister Hood

Also, strangely, if I select the object with the node tool, the layer where the label does show up says there is one geometry error (although there is no green cross indicating where it is), but the layer where the label doesn't show up says there is not.

#4 - 2011-07-14 04:23 PM - Alister Hood

And if I copy and paste the object that supposedly has a geometry error into the other file, then the label does show up. But then it disappears when I save the changes to the layer.

#5 - 2011-07-14 04:32 PM - Alister Hood

> *And if I copy and paste the object that supposedly has a geometry error into the other file, then the label does show up. But then it disappears when I save the changes to the layer.*

Except I have now managed to copy it in and save the layer without the label disappearing... and I don't know what I did differently!

#6 - 2011-07-17 12:17 AM - Alister Hood

Another interesting thing: the file which *does* show the label (and which is supposed to have an invalid geometry) crashes globe plugin if the labels are turned on and I zoom right in :)

#7 - 2011-07-19 08:35 PM - Alister Hood

- Pull Request or Patch supplied set to No

> *Another interesting thing: the file which does show the label (and which is supposed to have an invalid geometry) crashes globe plugin if the labels are turned on and I zoom right in :)*

Actually: forget about the globe plugin. With labels turned on *both* files cause a crash when zooming in close in QGIS itself :(

I didn't think this was happening previously (I've updated my trunk build this afternoon)... but I guess I was probably wrong.

#8 - 2011-07-19 09:00 PM - Alister Hood

Using the VCexpress debugger I get the error message "Unhandled exception at 0x014d3ac3 (qgis_core.dll) in qgis.exe: 0xC0000005: Access violation reading location 0x0000000d.", and if I click Break it goes to this line in qgsgeometry.cpp:
if (mDirtyGeos)

#9 - 2011-07-20 12:23 AM - Alister Hood

Oh, and there's this in the output window:
First-chance exception at 0x7c812afb in qgis.exe: Microsoft C++ exception: geos::util::TopologyException at memory location 0x0131ca68..
First-chance exception at 0x7c812afb in qgis.exe: Microsoft C++ exception: geos::util::TopologyException at memory location 0x0131ca5c..
First-chance exception at 0x7c812afb in qgis.exe: Microsoft C++ exception: geos::util::TopologyException at memory location 0x0131c9f4..
First-chance exception at 0x7c812afb in qgis.exe: Microsoft C++ exception: geos::util::TopologyException at memory location 0x0131cdc8..

#10 - 2011-07-20 12:57 AM - Alister Hood

- Priority changed from Normal to High

I guess this should be "High" priority, since it causes a crash (and perhaps especially since I managed to create the offending shape files in QGIS :))

#11 - 2011-09-06 10:39 PM - Alister Hood

For the record

I believe commit 05cdd5247a3435f84be06a27a4b4e213ed861e7d fixed the crashes, although I didn't test in the globe.

The label is still missing.

#12 - 2011-12-16 09:43 AM - Paolo Cavallini

- Category changed from Symbology to Labelling

#13 - 2011-12-16 02:11 PM - Giovanni Manghi

- Target version set to Version 1.7.4

#14 - 2011-12-24 06:54 AM - Giovanni Manghi

- Crashes QGIS or corrupts data set to No

- Status changed from Open to Feedback

- Affected QGIS version set to master

Hi,

this is issue appears to be the same of #4634. Can you check it so we can eventually close that ticket as duplicate?

#15 - 2012-01-08 06:50 PM - Alister Hood

I can't reproduce #4634, but I can still reproduce this one.

#16 - 2012-03-05 01:26 PM - Alister Hood

I suspect this is the same issue as #3517 and #2949

#17 - 2012-04-16 06:28 AM - Paolo Cavallini

- Target version changed from Version 1.7.4 to Version 1.8.0

#18 - 2012-09-04 11:59 AM - Paolo Cavallini

- Target version changed from Version 1.8.0 to Version 2.0.0

#19 - 2012-09-16 12:23 AM - Giovanni Manghi

- Resolution set to fixed

With the lastest changes in labelling code this seems to be fixed, at least the "strange label location" issue. The "missing" labels are easy to explain: that polygons missing the label (in the attached picture) are not features of their own, but are "parts" of other polygons in the layer.

#20 - 2012-09-16 12:32 AM - Giovanni Manghi

- Status changed from Feedback to Closed

#21 - 2012-09-16 04:00 PM - Alister Hood

- Status changed from Closed to Reopened

- Priority changed from High to Normal

|

> *The "missing" labels are easy to explain: that polygons missing the label (in the attached picture) are not features of their own, but are "parts" of other polygons in the layer.*

No, I'm not complaining about the small parts of multipart polygons not being labelled.

One of the polygons is not labelled at all (in one of the files). This polygon consists of two parts which are touching each other.

#22 - 2012-09-16 04:07 PM - Alister Hood

I see that now it is labelled when labelling with "around centroid", just not with "free".

#23 - 2012-09-16 06:42 PM - Larry Shaffer

Hi Alister,

With recent changes, 'around' and 'offset' have their centroids converted to points (via GEOS) before being processed by PAL. This fixed some issues with how PAL was figuring centroids, but also means (apparently) that GEOS is somewhat adept at handling 'GEOS-invalid' geometries for some operations. The options Free, Horizontal, and Perimeter are still figured in PAL using the polygon *if it is valid*.

If you select the geometry in question that is not producing a label and run the following in Python Console:

    from qgis.utils import iface
    f = iface.activeLayer().selectedFeatures()[0]
    f. geometry().isGeosValid()

It returns False, i.e. an invalid GEOS geometry (as you noted above). Even though invalid, GEOS can generate a valid centroid for it. However, the following line in qgspallabeling.cpp will essentially skip running the polygon geometry through PAL (i.e. it's not PAL ignoring the geometry):

https://github.com/qgis/Quantum-GIS/blob/master/src/core/qgspallabeling.cpp#L723

What's needed here is a more robust means of trying to either fix invalid geometries on-the-fly, or for those geometries to be replaced with a temporary valid proxy via some other operation (like the 'buffer 0' trick) for labeling. Geometries are already duplicated (then deleted) for creating PAL labels.

More info on fixing geometries #4634-17

Update: as a test, I commented out qgspallabeling.cpp#L725-6, to see if PAL could also deal with the invalid geometry (or crash), and it did not, i.e. the label was not shown. So fixing invalid geometry before processing with PAL seems the thing to do.

I also tried a simple fix for invalid geometries with:

    QgsGeometry* geom = f.geometry();
    if (!geom)
    {
     // try simple fix invalid polygons
     if (geom->type() == QGis::Polygon)
     {
      geom = geom->buffer(0.0, 8); // try simple buffer 0 fix

       if (!geom)

```
      {
        return; // invalid geometry
      }
    }
    else
    {
      return; // invalid geometry
    }
  }
```

and later when converting to GEOS

```
    if ( geos_geom == NULL )
    {
      // try simple fix invalid polygons
      if ( geom->type() == QGis::Polygon )
      {
        geos_geom = geom->buffer( 0.0, 8 )->asGeos(); // try simple buffer 0 fix

        if ( geos_geom == NULL )
        {
          return; // invalid geometry
        }
      }
      else
      {
        return; // invalid geometry
      }
    }
```

But, this did not fix the 'temp' polygon. The only reason I can think of for why your 'SW...' file is labeling the invalid polygon, is that while QgsGeometry reports it is invalid, for whatever reason, it can still be converted to a GEOS geometry and used by PAL.

#24 - 2013-07-24 04:25 PM - Alister Hood

- Subject changed from Mysterious missing label to (Some) features with invalid geometries not labelled

#25 - 2014-04-02 03:29 PM - Alvaro Huarte

- Resolution deleted (fixed)

I have implemented the **ST_MakeValid** function for QgsGeometry class to fix the related issues #9861 and #9777. The code is a fork from the original code in postgis implementation with slight changes:

https://github.com/postgis/postgis/blob/svn-trunk/liblwgeom/lwgeom_geos_clean.c

Also, the user can configure automatic validation of the fetched geometries of a layer and convert them to valid when needed.

https://github.com/qgis/QGIS/pull/1241

Best regards

Alvaro

#26 - 2014-06-28 07:40 AM - Jürgen Fischer

- Target version changed from Version 2.0.0 to Future Release - Lower Priority

#27 - 2017-05-01 01:10 AM - Giovanni Manghi

- Regression? set to No

- Easy fix? set to No

#28 - 2019-03-09 04:04 PM - Giovanni Manghi

- Status changed from Reopened to Closed

- Resolution set to end of life

End of life notice: QGIS 2.18 LTR

Source:

http://blog.qgis.org/2019/03/09/end-of-life-notice-qgis-2-18-ltr/

#29 - 2019-03-10 03:41 PM - Alister Hood

- Description updated

- Resolution changed from end of life to fixed/implemented

I believe https://github.com/qgis/QGIS/pull/1617 is what fixed it.

Files

no_label.JPG	56.5 KB	2011-07-14	Alister Hood
strange_label_locations.JPG	54.5 KB	2011-07-14	Alister Hood
temp.zip	8.08 KB	2011-07-14	Alister Hood