Chapter 8

REPORTS OF *SALMONELLA* IN DUCKS AND GEESE

There has been a continued declining trend in the number of VIDA submissions from ducks and geese sent to AHVLA regional laboratories in recent years with most *Salmonella* monitoring submissions from ducks and geese being tested at private laboratories instead. During 2013, a total of 79 submissions were received for ducks (compared to 96 submissions in 2012 and 105 submissions in 2011) and 22 submissions were received for geese (compared to 26 submissions in 2012 and 41 submissions in 2011). Of the submissions received in 2013, 67.1% of those from ducks and 86.4% of those from geese were for diagnostic purposes.

There was one report of *Salmonella* Ajiobo from geese in 2013, which had been sampled for voluntary surveillance on-farm. This was the first report of *Salmonella* from geese since 2010 (Table 8.2). This serovar has never previously been reported from geese or ducks through routine surveillance or clinical diagnoses, but has been found in research projects and is usually associated with badgers or foxes.

During 2013, there were 333 isolations of *Salmonella* from ducks. This is almost double the number of isolations from ducks in 2012 (169 isolations) and similar to the number of isolations seen in 2009 (385 isolations) (Table 8.1). The reports from ducks represented 12.0% of all *Salmonella* isolations in 2013 compared with 5.2% in 2012 and 2.4% in 2011.

Whilst there is a Duck Assurance Scheme[1] in place in Great Britain, there are no statutory monitoring requirements for *Salmonella* in either ducks or geese. The increase in *Salmonella* isolations from ducks in 2013 is largely due to increased voluntary surveillance activity within the duck industry. Virtually all of the *Salmonella* isolations from ducks in 2013 arose via voluntary surveillance, with the exception of just one isolation that originated from a diagnostic submission.

All but 23 of the *Salmonella* isolations from ducks in 2013 were from samples collected at the farm; seven isolations were from samples collected at hatcheries and the location of sampling for the remaining sixteen isolations is not known.

[1] Further details regarding the Duck Assurance Scheme may be found in the *Salmonella* in Livestock Production in GB: 2011 report.

.

The frequency of many serovars increased compared with the previous year however the relative proportions of the most common serovars in ducks were very similar to 2012. For example, *S*. Indiana was the most common serovar isolated from ducks in 2013 with a total of 130 isolations (39.0% of all duck *Salmonella* isolations), and in 2012 there were 59 isolations of this serovar (34.9% of all duck *Salmonella* isolations) (Figure 8.1). Most of the increases in numbers of isolations are thought to be related to the significant increase in voluntary monitoring, and hence *Salmonella* isolations overall, during the year.

The number of *S.* Typhimurium isolations increased this year (from 10 in 2012 to 15 in 2013), however the proportion of all duck *Salmonella* isolations from which this serovar was recovered decreased (from 5.9% to 4.5%). It was the most commonly reported serovar from ducks in both 2011 (56 reports; 77.8% of all duck *Salmonella* isolations) and 2010 (119 reports; 60.4% of all duck *Salmonella* isolations) (Figure 8.2). Fourteen of the isolations in 2013 were DT41 and there was a single isolation of DT40 (Figure 8.3). DT40 has never been reported in ducks in GB before and DT41 was last reported in ducks in 2006. Both of these phage types are often associated with wild birds. There has been no identified increased risk to human or livestock health with *S.* Typhimurium DT41 but it has been isolated from broiler breeder flocks in various countries in previous years.

There has been a decline in *S.* Typhimurium DT8, a typical duck associated phage type, which was common amongst *S.* Typhimurium isolations in previous years (Figure 8.3). The greater number of *S.* Typhimurium reports in 2010 and 2011 in part reflects trace-back investigations following an outbreak of human illness due to *S.* Typhimurium DT8 associated with the consumption of duck eggs, and also specific investigations within the duck industry.

Regarding monophasic strains of *S*. Typhimurium, there were no isolations of *Salmonella* 4,[5],12:i:- from ducks during 2013, compared to one isolation of *S.* 4,12:i:- in 2012 and none of *S.* 4,5,12:i:- (Figures 8.5 and 8.6).

There were no isolations of *S*. Enteritidis from ducks in 2013. There were only seven *S.* Enteritidis isolations in total over the preceding four years and most of those isolations were PT9b which is specifically associated with ducks (Figure 8.4).

There were no reports of *S*. Kedougou in 2013. Prior to 2010, this was a relatively common serovar in ducks. Isolations of *S*. Hadar from ducks have also declined considerably compared with pre-2010 levels.

S. Bovismorbificans appeared in ducks for the first time in 2012 and increased in 2013. This serovar has also been increasingly found in pigs, especially in the 2013 abattoir survey. *S*. Indiana and *S*. Give, which are typically associated with duck production, also increased substantially in 2013.

Table 8.1: Isolations and incidents of *Salmonella* in ducks on all premises in Great Britain

Salmonella subspecies	2009		2010		2011		2012		2013	
	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents
ENTERICA ENTERICA										
Bovismorbificans	-	-	-	-	-	-	11	9	15	11
Bredeney	1	1	-	-	1	1	5	4	10	7
Dublin	-	-	-	-	-	-	1	1	-	-
Enteritidis	2	1	-	-	1	1	4	2	-	-
Give	33	25	6	5	-	-	13	10	35	28
Give var 15^{+} ***	-	-	1	1	-	-	3	3	20	20
Hadar	63	52	8	4	1	1	6	3	13	9
Havana	5	5	3	3	-	-	-	-	-	-
Heidelberg	1	1	-	-	-	-	-	-	-	-
Hindmarsh	-	-	-	-	-	-	1	1	-	-
Indiana	157	118	32	26	3	3	59	46	130	97
Kedougou	14	7	2	2	1	-	-	-	-	-
Kottbus	-	-	2	2	1	1	-	-	2	-
Lexington	-	-	-	-	1	1	-	-	-	-
Mbandaka	16	13	2	2	1	1	13	7	16	11
Monschaui	-	-	-	-	-	-	3	3	12	7
Newport	1	1	-	-	1	1	-	-	-	-
Orion**	72	61	9	7	2	1	22	15	36	29
Orion var 15^{+} **	-	-	3	3	-	-	12	8	18	16
Senftenberg	-	-	2	2	1	1	3	-	1	-
Typhimurium	11	8	119	17	56	13	10	5	15	4
4,5,12:i:-	-	-	2	1	-	-	-	-	-	-
4,12:i:-	-	-	-	-	-	-	1	1	-	-
UNSPECIFIED										
untypable strains	8	8	2	2	-	-	2	2	9	9
rough strains	1	-	4	4	2	2	-	-	1	1
TOTAL	**385**	**301**	**197**	**81**	**72**	**27**	**169**	**120**	**333**	**249**

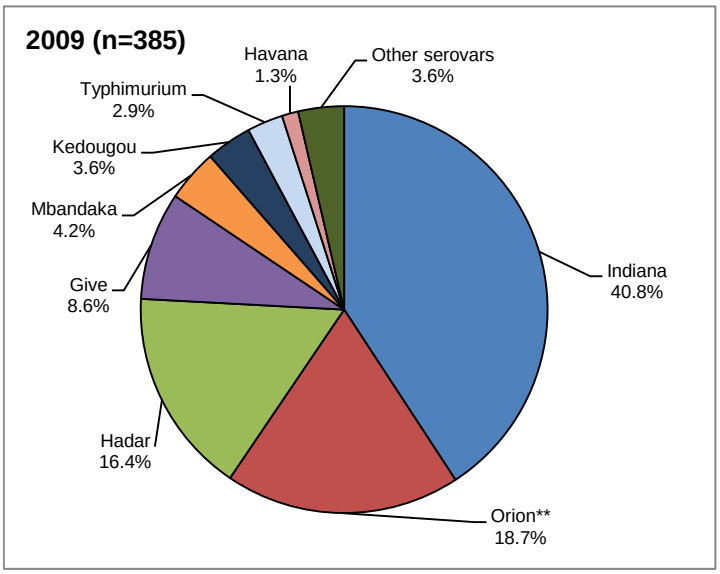
** *S*. Binza is now recorded as *S*. Orion var. 15^{+}, but was included with *S*. Orion in 2009

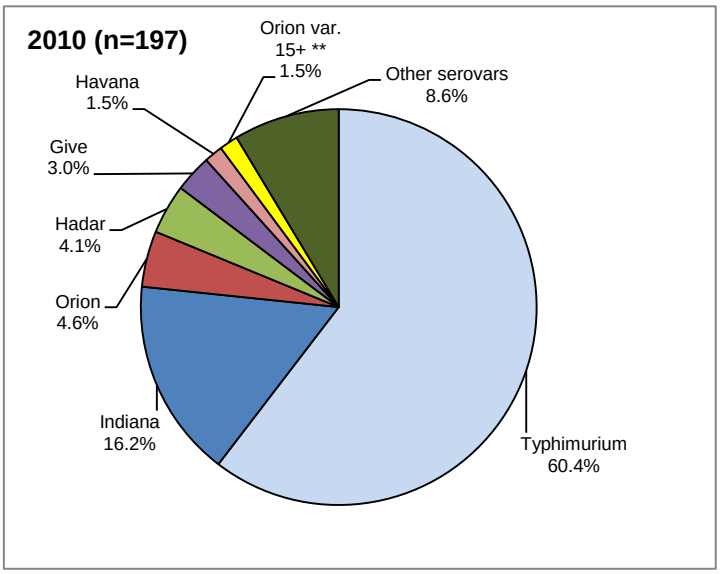
*** *S*. Newbrunswick is now recorded as *S*. Give var. 15^{+}

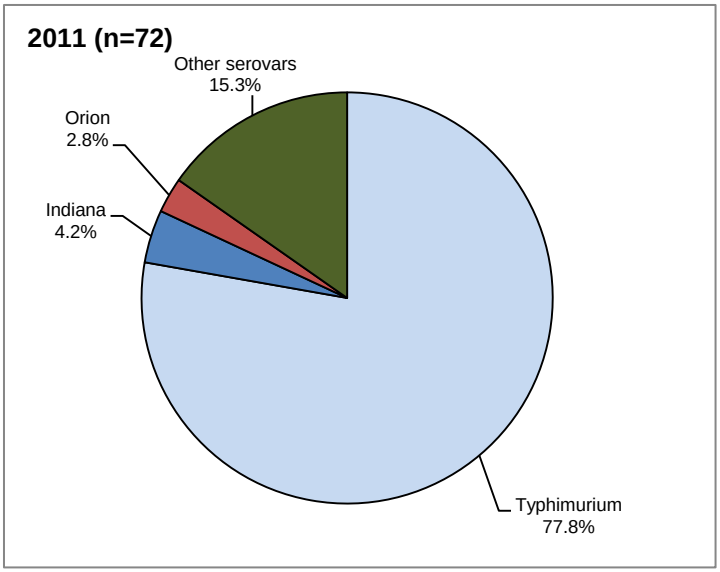
Table 8.2: Isolations and incidents of *Salmonella* in geese on all premises in Great Britain

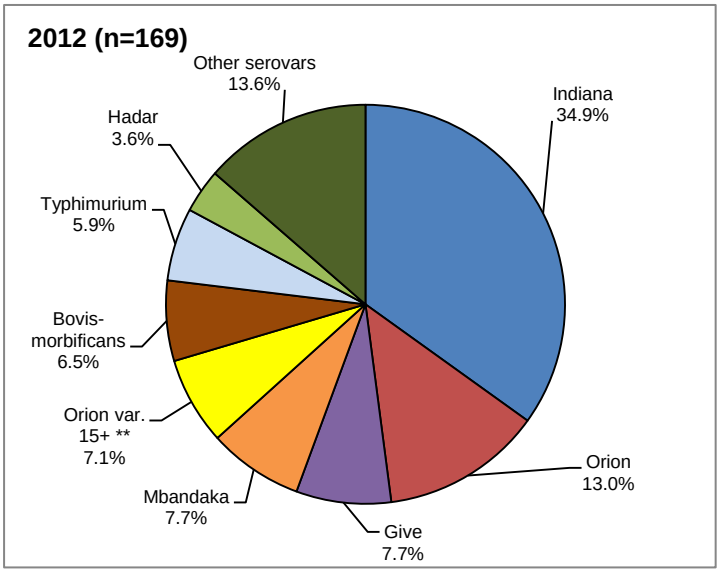
Salmonella subspecies	2009		2010		2011		2012		2013	
	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents	Isolations	Incidents
ENTERICA ENTERICA										
Ajiobo	-	-	-	-	-	-	-	-	1	1
Bovismorbificans	1	1	-	-	-	-	-	-	-	-
Enteritidis	2	-	-	-	-	-	-	-	-	-
Indiana	-	-	2	2	-	-	-	-	-	-
Typhimurium	1	1	2	2	-	-	-	-	-	-
TOTAL	**4**	**2**	**4**	**4**	**-**	**-**	**-**	**-**	**1**	**1**

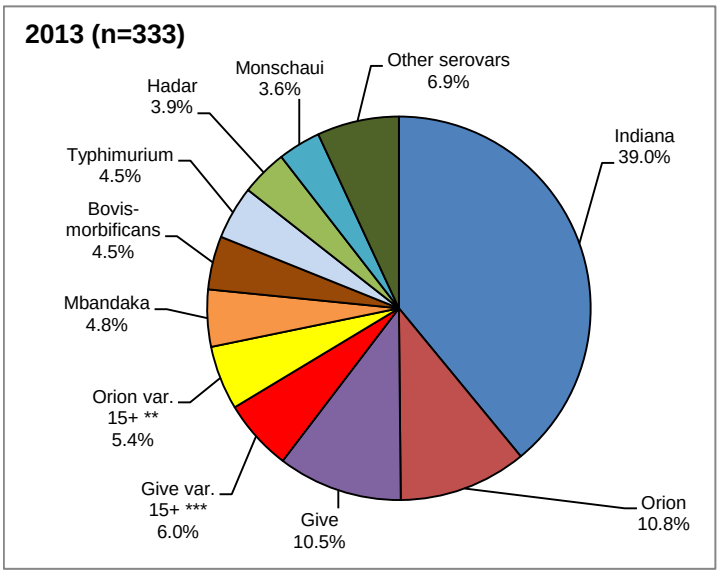
Figure 8.1: Isolations of the most common serovars in ducks in GB 2009 - 2013











** *S*. Binza, now recorded as *S*. Orion var. 15^{+}, was included with *S*. Orion in 2009

*** *S*. Newbrunswick is now recorded as *S*. Give var. 15^{+}

Figure 8.2: *S.* Enteritidis, *S.* Indiana, *S.* Typhimurium, monophasic variant *S.* Typhimurium and other serovars as a proportion of all isolations in ducks in GB (1993 - 2013)

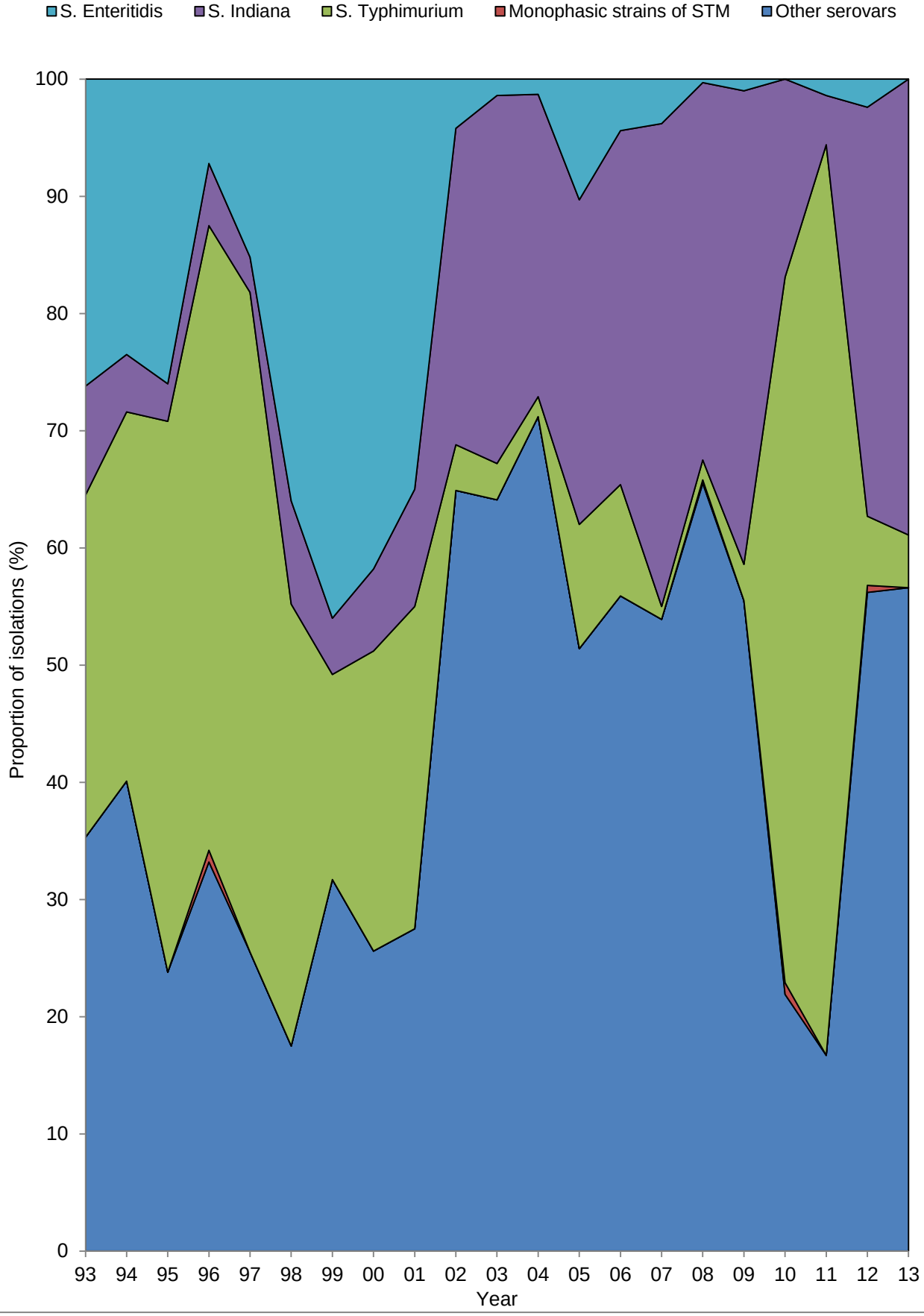


Figure 8.3: *S.* Typhimurium phage types in ducks and geese in GB 2009 - 2013

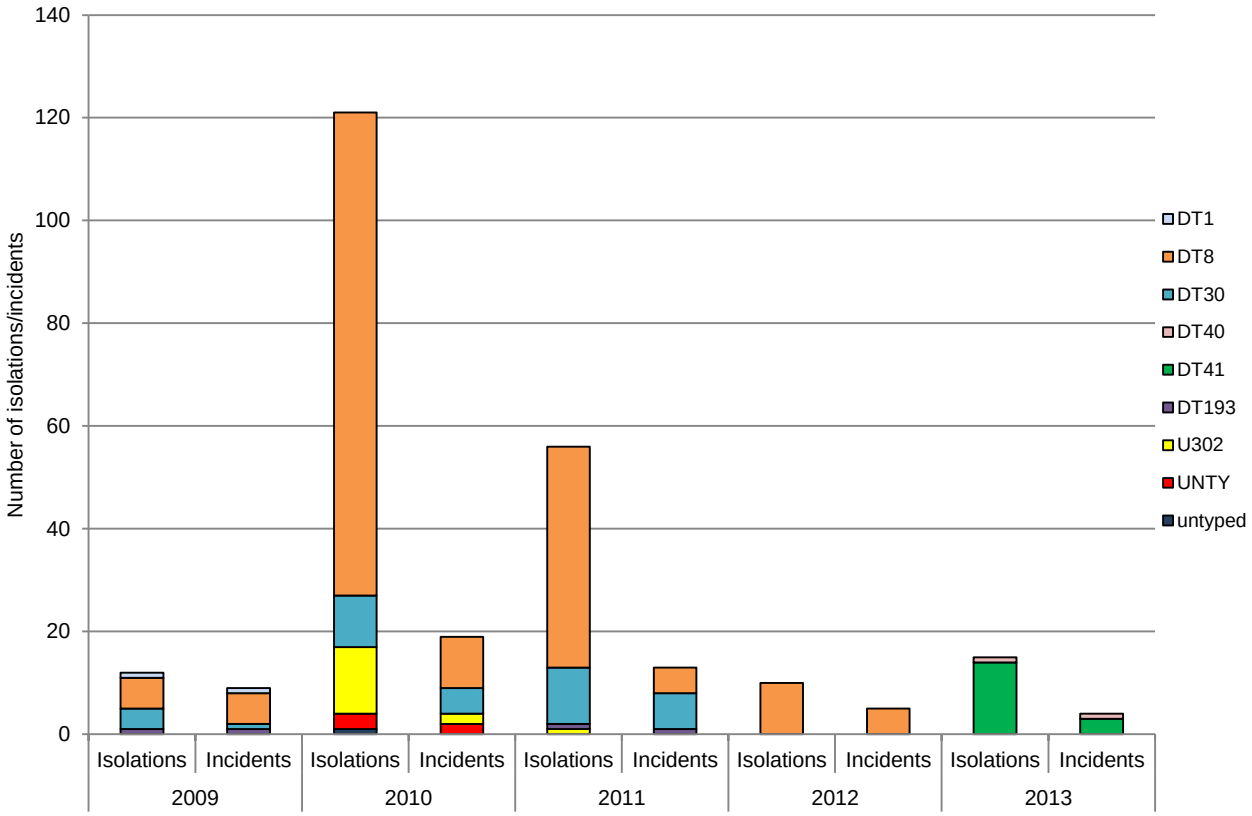


Figure 8.4: *S.* Enteritidis phage types in ducks and geese in GB 2009 - 2013

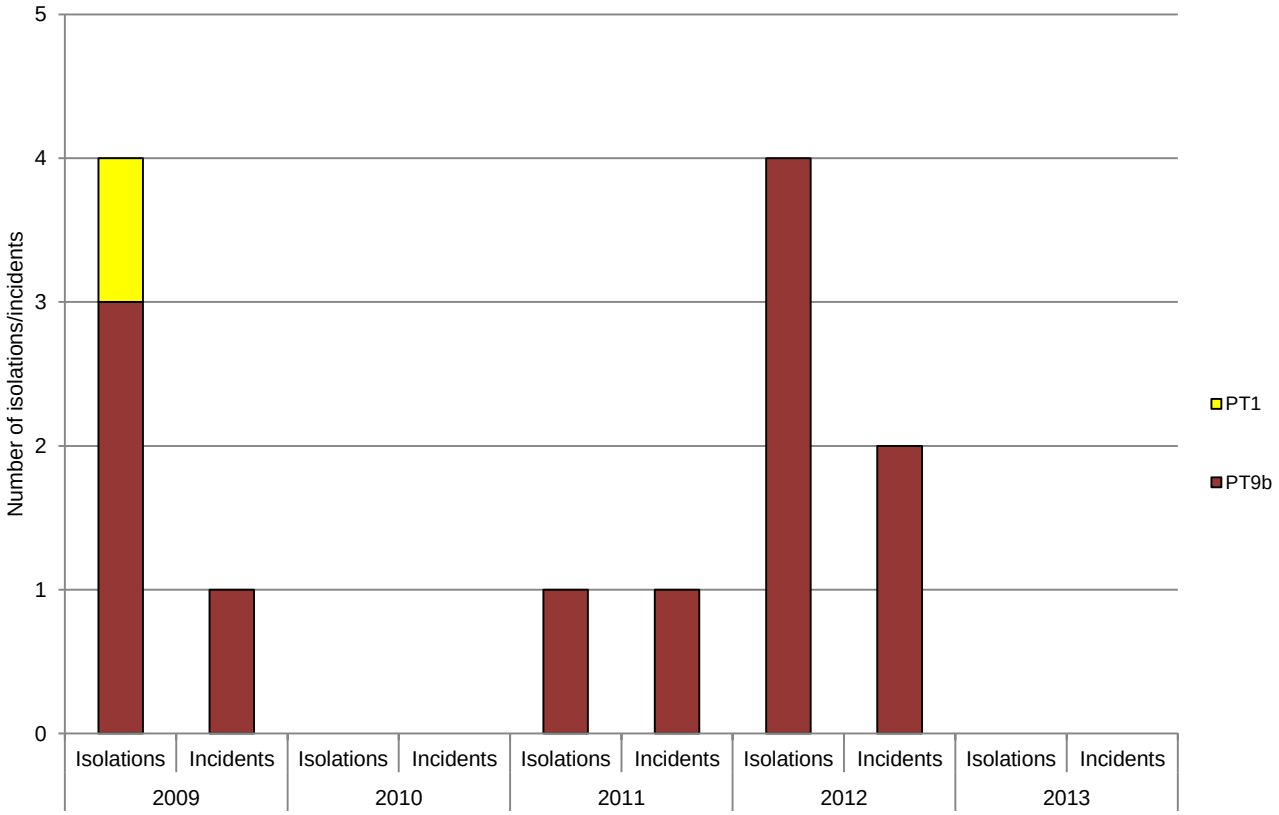


Figure 8.5: *Salmonella* 4,5,12:i:- phage types in ducks and geese in GB 2009 - 2013

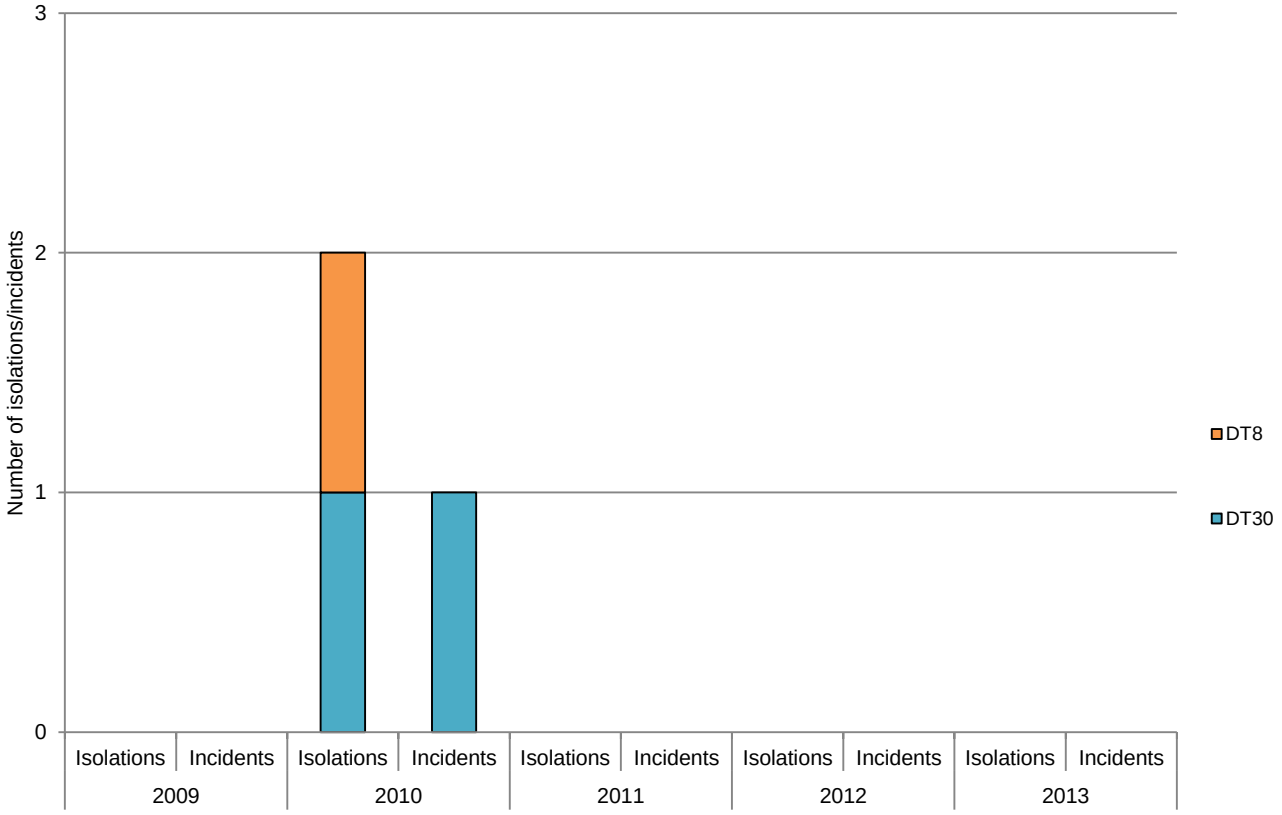


Figure 8.6: *Salmonella* 4,12:i:- phage types in ducks and geese in GB 2009 - 2013